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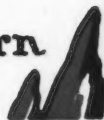
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THE CONDOR

A Magazine of Western
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Volume XXXVI

January-February, 1934

Number 1



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THE CONDOR

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CONTENTS

| | PAGE |
|--|----------------------------|
| A New Species of Hummingbird, Genus <i>Chaetocercus</i> , from Eastern Ecuador (with frontispiece and one other ill.)..... | Robert T. Moore 3 |
| Field Observations from Echo Lake, California..... | Dudley S. DeGroot 6 |
| Some Early Summer Food Preferences of the American Raven in Southeastern Oregon..... | A. L. Nelson 10 |
| In Memoriam: George Frean Morcom, March 16, 1845—March 25, 1932 (with portrait)..... | Harry S. Swarth 16 |
| An Abnormal Little Flycatcher (with two ill.)..... | Walter W. Bennett 24 |
| Remarks on the Proposed Races of <i>Squatarola squatarola</i> (Linn.) and Comments on the Nomenclature..... | James L. Peters 27 |
| A Fossil Quail from Nebraska (with one set ill.)..... | Alexander Wetmore 30 |
| FROM FIELD AND STUDY | |
| Notes on Hummingbirds and Orioles (with one ill.)..... | Robert S. Woods 31 |
| Dancing Movements of Old-World Gulls..... | Claud B. Tiechurst 32 |
| Traffic Mortality of Wild Life..... | A. Brazier Howell 33 |
| Unusual Behavior of the Western Robin..... | Charles W. Michael 33 |
| Flicker Hybrids..... | P. A. Taverner 34 |
| Records of the Nesting of Certain Birds in Eastern California..... | James B. Dixon 35 |
| Banded Laughing Gull Recovered in El Salvador..... | Frederick C. Lincoln 36 |
| An Occurrence of the Northern Black Swift off the Guatemalan Coast..... | M. E. McLellan Davidson 37 |
| Yellow-billed Magpies in Captivity..... | Glen Vargas 37 |
| Nesting of the Western Robin in Solano County, California..... | Emerson A. Stoner 38 |
| Problems in the Classification of Northwestern Horned Owls..... | H. S. Swarth 38 |
| Additional Notes from Santa Catalina Island..... | Don Meadows 40 |
| Fossil Bird Remains from the Pliocene and Pleistocene of Texas (with ill.)..... | Lawrence V. Compton 40 |
| The Black-throated Green Warbler in Arizona..... | Seth B. Benson 42 |
| An Aged Band-tailed Pigeon..... | Roland Case Ross 42 |
| The Ruff on St. Lawrence Island..... | Herbert Friedmann 42 |
| Tri-colored Red-wing Nesting in Eastern Shasta County, California..... | Johnson A. Neff 43 |
| NOTES AND NEWS..... | |
| Portrait of A. C. Bent..... | 44 |
| MINUTES OF COOPER CLUB MEETINGS..... | |
| | 45 |



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Business Managers



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The Condor, January, 1934

Chaetocercus cleavesi, sp. nov. Marilyn Wood-Star
From a water-color drawing by Walter Alois Weber

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A NEW SPECIES OF HUMMINGBIRD, GENUS CHAETOCERCUS, FROM EASTERN ECUADOR

WITH FRONTISPIECE AND ONE OTHER ILLUSTRATION

By ROBERT T. MOORE

The securing of specimens of a seemingly new species of hummingbird from a well-known collecting locality such as Baeza, Ecuador, which has been gone over with a fine-toothed comb by native collectors, led to unusual care in the assembling of adequate material for comparison. The first notes on the subject, expressing the belief in the validity of the new species, date from September 17, 1931. During the two years that have elapsed, the author has inspected all of the available specimens of the species of the genus *Chaetocercus* in the Field Museum of Natural History, the Museum of Comparative Zoology, the American Museum of Natural History, and the National Museum of the Smithsonian Institution, Washington. Due to a superficial resemblance of the new form to *Chaetocercus heliodori* (Bourcier), sixty specimens of *heliodori* have been examined and measured. Recently a specimen in the American Museum of Natural History, marked "Type, *Chaetocercus heliodori* (Bourcier) No. 37913" has been compared. As there seems no longer any reasonable doubt, the new species is herewith described.

My grateful thanks are offered to Dr. Wilfred H. Osgood of the Field Museum of Natural History and Dr. Harry C. Oberholser of the Bureau of Biological Survey for the loan of comparative material, and to Mr. James L. Peters for his courtesy in permitting me to examine the specimens in the Museum of Comparative Zoology. I am particularly indebted to Dr. Frank M. Chapman of the American Museum both for the loan of material and for the opportunity to examine the "type" of *Chaetocercus heliodori*. To Dr. Alexander Wetmore of the Smithsonian Institution I wish to express my deep appreciation for his kindness in checking the characters of the new species, for general advice, and for his supervision of the drawings of the rectrices.

Chaetocercus cleavesii, sp. nov.

Type.—Male adult, no. 7014, collection of Robert T. Moore; Cuyuja, northeast Ecuador; June 19, 1928; collectors, Olalla and Sons; original field no. Ec-H1688.

Specific characters.—Resembles *Chaetocercus heliodori* (Bourcier) of Colombia in coloration, but upper parts darker, more bluish green; band between gular patch and gray chest reduced to very narrow, sinuate whitish crossbar; chest below whitish

bar, darker gray; gular patch uniform in color, rhodamine purple [color terms in this paper taken from Ridgway, Color Standards and Color Nomenclature, 1912], less purplish as a rule than in *heliodori* of Colombia (the type locality) in which it is usually true purple; formula for length of rectrices different from that in *heliodori*; outer rectrix much narrower (50 percent); second rectrix even more narrow (53 per-

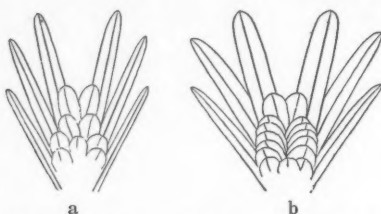


Fig. 1. Rectrices of (a) *Chaetocercus cleavesii*; (b) of *C. heliodori*. $\times 1\frac{1}{2}$

cent) and considerably shorter (17 percent); third rectrix much narrower (43 percent) and shorter; in addition, two outer pairs of rectrices differently shaped, outer rectrix being more linear and second rectrix straighter. Female resembles female of *heliodori*, but under parts darker, especially chin and throat, the latter pinkish cinnamon instead of pinkish buff.

Geographical distribution.—Northeastern Ecuador, in Humid Subtropical Zone. Most of the specimens have come from Baeza, altitude determined by Joseph H. Sinclair (Geographical Review, April, 1929, p. 207) as 6260 feet, but in view of the fact that the species has been found in other localities of eastern Ecuador (some of them at higher altitudes), namely, "Oyacachi abajo," "Cuyuga," and "Rio Tollin," it is possible that it ascends at times to the lower Humid Temperate Zone.

Description of type.—Above danube green faintly mottled with chromium green, including upper tail coverts, rump and middle back; anteriorly chromium green becomes more prominent, brightest on nape; crown, forehead and lores deep dull yellow-green finely barred with black; narrow line from eye to gape black; small postocular spot white; chin, throat and lateral, elongated feathers of gular patch glittering iridescent rhodamine purple; lateral gular feathers extending over and largely concealing a white patch on side of neck; lower throat (chest) dusky drab, the feathers edged with pale mouse gray; narrow line between drab area and gular patch whitish pallid mouse gray; remainder of under parts, including under tail coverts, flanks, sides under wings, and axillars dark cinnabar green; entire wing blackish brown, except lesser wing coverts which are metallic empire green, and inner edge of wing from bend to insertion of primaries which is dark russian green; rectrices, except median pair, black, the outer webs of fourth pair (counting from the outside) metallic deep dull yellow green touched with copper near shaft; median rectrices metallic deep dull yellow green with touches of buffy near bases; large white tufts at bases of flanks between under tail coverts and legs, but not attached to latter; other white tufts under wings above junction of leg with body; thighs chaetura drab sprinkled with gray; toes hair brown; bill black in dried specimens.

Description of adult female.—No. 7019, collection of Robert T. Moore; Cuyuja, northeast Ecuador; June 19, 1928; Olalla and Sons. Middle of back and wing coverts iridescent cosse green, feathers toward rump finely margined with darker green; rump hazel, a few feathers in center of rump cosse green, very finely tipped with hazel; upper tail coverts hazel; hind neck and nape metallic ecru-olive, each feather with fine border of black, creating a tessellated appearance, concealed base of each feather possessing a broad shaft-line of white; crown and forehead, when viewed from behind, same as nape, but seen from in front, darker; comparatively broad line from eye to gape velvety black, narrower anteriorly; this line continues posteriorly below eye to ear coverts, becoming wider posteriorly and extending to side of neck, creating a more or less triangular black patch; large postocular spot white; chin,

throat and upper chest dark vinaceous cinnamon, becoming orange-cinnamon on chest and dark hazel on flanks, sides under wings, axillars, abdomen and under tail coverts; somewhat lighter on center of abdomen; wings, except lesser wing coverts, dusky brown; edge of wing both above and below dark olivaceous black; two white tufts as in male; rectrices chestnut, crossed in middle by wide bar of black; thighs light vinaceous cinnamon mixed with black; toes and bill as in male.

Specimens examined.—Eight males and 11 females of *C. cleavesi*; 40 males and 21 females of *C. heliodori*.

Chaetocercus cleavesi, although resembling *C. heliodori* in general coloration, has rectrices of different sizes, shapes and proportions, so that it challenges comparison with *C. astreans* Bangs of the Santa Marta region of eastern Colombia. In addition to the specific characters mentioned above, *cleavesi* differs on the average from related species in other ways. I possess six males and eight females of the new species. One adult female is in the collection of the Smithsonian Institution (no. 174563) and one adult male, one immature male and two adult females in the collection of the American Museum of Natural History. These eight males and eleven females show very little variation. On the other hand, specimens of *heliodori* from Colombia exhibit considerable color variation, some of them being fairly dark and others much lighter yellowish green both above and below, but the rectrices do not vary. Specimens from Venezuela are almost uniformly lighter green in color and the gular patch is more purplish. The specimens I have examined of adult male *heliodori* from Ecuador have precisely the same tail characteristics as the birds from Colombia, which characteristics are accentuated in the Venezuelan birds. *Chaetocercus cleavesi* in the adult male has a distinct bluish cast on the lower under parts which is approximated in only a few specimens of *heliodori* from Colombia. In the females of *cleavesi* the rump is almost unrelieved chestnut (hazel), instead of green like the back.

In addition to the things mentioned above, the structure of the rectrices of the males reveals some interesting features which prove to be subject to surprisingly little variation. Compared with *heliodori* the outer rectrix is invariably a shorter and narrower feather, more linear in outline, with the sides for most of their length parallel instead of narrowing gradually to a point. The second rectrix is not only shorter than in *heliodori* but is also considerably shorter than the third rectrix (of *cleavesi*), whereas in *heliodori* the two are almost the same length. Furthermore, in *cleavesi* the second rectrix is perfectly straight, whereas in *heliodori* it bends slightly outward near the tip. The first rectrix of *cleavesi* is almost identically the same in length as the fourth rectrix, but in twenty-one adult male *heliodori* from Colombia it is twelve percent longer, and in fifteen adult males from Venezuela it averages fifteen percent longer. This results in a slightly different rectrix formula from that in any other species of *Chaetocercus* except *rosae*, that I have examined. These tail characters are not due to immaturity; all the immature males of *heliodori* that have incomplete gular patches possess fully developed male rectrices characteristic of *heliodori*. *Chaetocercus heliodori*, *astreans*, *bombus*, *mulisanti* and *berlepschi* have the same rectrix formula for length, as follows: Beginning with the outer rectrix and giving the shortest rectrix the lowest number, the formula reads, 3, 4, 5, 2, 1. In the case of *C. burmeisteri* we have the formula, 4, 5, 3, 2, 1, with the median and fourth pairs almost the same length and the first and second pairs almost the same. In the case of *C. rosae* it is 2, 4, 5, 3, 1, with the first, fourth and median pairs of almost equal length. In *cleavesi* it is the same, but the first pair is only very slightly less than the fourth pair on the average, and in three individuals the

fourth rectrix is a trifle the longest. The wings of Colombian specimens of *heliodori* average about six percent longer than in *cleavesii*, but Venezuelan birds are practically the same.

The extremely short tail renders *Chaetocercus cleavesii* one of the very smallest of hummingbirds, almost rivaling in this respect *Calypte helenae* (Lembeye) of Cuba. It will require measurements of freshly killed specimens in the field to settle the question.

AVERAGE MEASUREMENTS IN MILLIMETERS OF *Chaetocercus cleavesii* AND *C. heliodori*

| | Wing | Exposed culmen | MALES | | | | | Width of rectrices | | | | |
|---|------|----------------|---------------------|--------------|--------------|--------------|--------------|--------------------|-------------------------------|-------------|-------------|--------------|
| | | | Length of rectrices | | | | | Outer | Second | Third | Fourth | Median |
| | | | Outer | Second | Third | Fourth | Median | | | | | |
| Seven adult males, northeast Ecuador (<i>cleavesii</i>) | 27.2 | 12.5 | 10.2 | 14.5 | 16.4 | 10.3 | 8.0 | .5 | .7 | 1.2 | 2.0 | 3.2 |
| One adult male, Ecuador (<i>heliodori</i>) | 27.9 | 12.2 | 11.1 | 18.1 | 18.3 | 10.3 | 7.5 | .7 | 1.5 | 2.2 | 3.0 | 3.5 |
| Twenty-one adult males, Colombia (<i>heliodori</i>) | 28.3 | 12.5 (18) | 12.1 (19) | 17.5 (19) | 18.4 (19) | 10.8 (19) | 7.7 (19) | 1.0 (19) | 1.8 (19) | 2.2 (19) | 3.0 (18) | 3.7 (16) |
| Fifteen adult males, Venezuela (<i>heliodori</i>) | 27.5 | 12.8 (14) | 12.0 | 17.5 | 18.4 | 10.4 | 7.7 | .9 | 1.7 | 2.3 | 3.2 | 3.6 (12) |
| FEMALES | | | | | | | | | | | | |
| Ten adult females, northeast Ecuador (<i>cleavesii</i>) | | | | | | | Wing 32.4 | | Exposed culmen 13.5 (9) | | | Tail 14.0 |
| Five adult females, Ecuador (<i>heliodori</i>) | | | | | | | 32.1 | | 12.9 | | | 13.1 |
| Eight adult females, Colombia (<i>heliodori</i>) | | | | | | | 31.5 | | 13.0 (7) | | | 13.7 |
| Six adult females, Venezuela (<i>heliodori</i>) | | | | | | | 32.8 | | 13.8 | | | 14.4 |

Numbers in parentheses indicate numbers of specimens represented in averages.

Note.—The original painting, from which the color plate of the frontispiece was taken, was larger and revealed a second male specimen in flight with rectrices spread. This figure shows with remarkable faithfulness the characters of the tail feathers. In justice to the artist's excellent composition it is unfortunate that the entire painting could not have been reduced and used; however, had this been done, the birds would have been so small that the characters could not have been discerned.

California Institute of Technology, Pasadena, California, November 12, 1933.

FIELD OBSERVATIONS FROM ECHO LAKE, CALIFORNIA

By DUDLEY S. DEGROOT

For the past two summers I have been charged with the responsibility of conducting nature study in a boys' camp located at the extreme upper end of Upper Echo Lake, Eldorado County, California. In the field almost daily from the middle of June till the middle of August, I have been able to draw upon the combined field observations of some sixty boys, with the net result that many interesting and some unusual records have been made. The most important of these follow.

The Sierra Grouse (*Dendragapus fuliginosus sierrae*), a rather retiring bird, has been observed many times on the steep mountain sides above the lake. This year it seemed to be unusually abundant. In 1932, on July 7, after an hour's strenuous hunt by twelve boys and the writer, a hen was located with seven little ones that evidently had been hatched not more than a few hours; for some of them were still damp and hardly able to move. The hen was covering her brood tightly and when discovered flew at us with great viciousness and abandon. When this failed to frighten

us she went into all sorts of clownish antics, including the old broken wing stunt and many others. All this time the male, who had led us to the family, was lodged some sixty feet up in the top of a tamarack, booming intermittently.

This year, on August 4, one old hen led her more than half-grown family right into the midst of camp and stayed with us all afternoon. The boys frightened her up into the branches of a tamarack but her four youngsters wandered all around camp, paying no heed to the boys except when they attempted to catch them. Then the birds would fly up into the lower branches of the surrounding trees and wait until they felt safe, when they would again come to the ground to feed. Two other families of grouse, of about the same size as the one mentioned above, came into the confines of the camp the following week. Six were counted in one group and seven in the other.

The Western Evening Grosbeak (*Hesperiphona vespertina brooksi*) was fairly common about camp this summer but none was noted the preceding year. One nest was found on July 7 which contained two eggs. It was located some fifty feet up in the outer branches of a tamarack and on that date was attended by the male bird which was observed in the tree but not on the nest. The nest was a typical grosbeak structure frailty but firmly made and in many respects much like that of the Cassin Purple Finch (*Carpodacus cassinii*), which nests so commonly in this region. Frequent daily observations from this date on, revealed the male in constant attendance but the female was never seen. On the 14th the nest was again climbed to and found to contain two eggs which were cold and which were quite evidently deserted, although the male was still in the neighborhood.

On August 1 a family of young grosbeaks was seen in a grove of aspens on the camp grounds. They were just learning to fly and were making quite a racket with their typical note, which is unlike that of any of the other birds in this vicinity. On August 8 another family was observed in camp and the next day one lone fellow was heard plaintively calling from the top of a small tamarack. It had evidently lost the rest of the family. A few hours later it was found on the ground and upon being picked up seemed to be a perfectly healthy bird and so was turned loose. I watched it for an hour and a half and it finally tucked its head under its wing and apparently went to sleep. A half hour later it toppled to the ground—dead. Whether it died from starvation or some disease is a question.

In two weeks time, two Western Wood Pewees, one White-crowned Sparrow, one Thurber Junco and two Hermit Warblers were found dead on the camp grounds. Their bodies seemed perfectly intact and free from bruises. Is there some form of food in this region at this time of the year which poisons these birds?

On July 29 a nest of the Sparrow Hawk (*Falco sparverius*) was located in the top of an old Jeffrey pine stub on a small island in the lake. The eggs hatched on July 4 and the young remained in the nest until after the first of August, the last one being observed on the 5th. This is quite a late record, I believe. The parent birds did most of their feeding on the hillside on the east side of the lake; and every time they went on a foraging expedition the chipmunks and several varieties of squirrels that lived in that area set up a great squealing and scurried for their respective holes. Although these mammals played some part in the Sparrow Hawk menu, insects seemed to be a much more stable part of the daily ration. These birds were careful guardians of this end of the lake and the few times that Western Red-tails, Cooper Hawks and Western Goshawks made their appearance they were driven off immediately.

A pair of California Pine Grosbeaks (*Pinicola enucleator californica*) evidently nested on or near the camp grounds and was observed feeding in one spot near the lake shore almost daily from the middle of July until the middle of August. The male was seen much more frequently. They paid little attention to observers so long as the latter made no quick movements, and I often approached within five feet of them. Their characteristic call-note could be heard as they came into their feeding grounds along a regularly traveled route, long before they could be seen. Several other pairs were observed in the camp region during the summer, marking this as a not uncommon bird in this region.

A single Spotted Sandpiper (*Actitis macularia*) was noted feeding at the outlet of Tamarack Creek, which feeds into Upper Echo Lake near the camp, every day from August 8 to 19, after which it disappeared. This is the only time that this species has been observed in this region.

A pair of Golden Eagles (*Aquila chrysaetos canadensis*) has been observed on the rocky mountain side which terminates in Angora Peak, back of camp. They have been seen at fairly close range both summers and undoubtedly nest somewhere in the back-country.

A pair of Western Goshawks (*Astur atricapillus*) has been observed both summers on the wooded ridge on the Desolation-Fallen Leaf trail. Occasionally they stray down as far as the lake, but for the most part they do their feeding in the more timbered area above camp.

Brewer Sparrows (*Spizella breweri*) were found nesting in small numbers on a high, brush-covered area above Haypress Meadow, on the Echo-Desolation trail. Several nests were found in 1932 and one set of eggs collected on July 7 of that year. They were observed in this same area again this year. This spot is at an estimated elevation of approximately 7800 feet.

The following birds were found nesting on or within a few hundred yards of the camp property during the 1933 season: Mountain Quail, Sierra Grouse, Sparrow Hawk, White-headed Woodpecker, Red-breasted Sapsucker, Williamson Sapsucker, Red-shafted Flicker, Calliope Hummingbird, Western Wood Pewee, Western Evening Grosbeak, Cassin Purple Finch, Pine Siskin, White-crowned Sparrow, Western Chipping Sparrow, Fox Sparrow, Green-tailed Towhee, Thurber Junco, Western Tanager, Tree Swallow, Cassin Vireo, Audubon Warbler, Pileolated Warbler, Lutescent Warbler, Sierra Creeper, Red-breasted Nuthatch, Pigmy Nuthatch, Mountain Chickadee, Townsend Solitaire, Sierra Hermit Thrush, Western Robin, Mountain Bluebird. In addition, although nests were not located, the Golden-crowned Kinglet, California Pine Grosbeak, Hermit Warbler, Calaveras Warbler, Western Red-tailed Hawk, and Western Goshawk undoubtedly nest near the camp.

Although I have suspected for some time that certain of the high Sierran birds reared two broods each season it was not until the present summer that I have been able to secure positive evidence. Two pairs of Western Robins and a similar number of Thurber Juncos, nesting within a few hundred yards of my summer abode, made it possible for me to gather positive evidence that this is not an unusual phenomenon.

Early in July a pair of Juncos (*Junco oreganus thurberi*) was located feeding four half-grown young in a beautifully hidden nest in a crevice in a rock. These birds were watched daily and the parents quite definitely identified by certain peculiar markings and actions. On July 15 the young of this nest were out learning to fly and three days later they had disappeared in so far as I could ascertain. Two days later the female was seen carrying nesting material and on July 29 she was flushed from her new nest which at that time contained two fresh eggs. This nest was

located not twenty-five feet from the first one and was similar in many respects although it was placed in a patch of skunk cabbage instead of a rock crevice, as in the first case. On August 3, the nest contained four eggs and the female was sitting. On the 16th the eggs had hatched and at this writing the young are about ready to fly. Another nest of this species was located in the same area at about the same time and similar observations were made, thus confirming my suspicion that this species is one which nests rather commonly twice each season.

A Western Robin (*Turdus migratorius propinquus*) was located with half-grown young on June 25; the nest was placed twelve feet up in a small tamarack. On July 4 the young were flying and they were being cared for by one parent while the other one, evidently the female, was already packing material for a new nest which she had started in a small aspen sapling less than fifty feet from the first nest. This second nest was not the elaborate structure that the first one was; when finished, it was especially short on grass and paper, which was so abundant in the first. On July 14 this nest contained three eggs and the female was sitting. On the 29th it contained three featherless infants which at this writing are rapidly nearing flying age.

Another robin reared her first brood some twenty feet up on the limb of a tamarack right near a boat-house. This brood flew on July 1, but remained about camp for several days longer. Then the old birds started a new nest some thirty feet from the first one, placing it this time thirty-odd feet up in the crotch of a small aspen sapling. This tree was too slender to be climbed, but the female had started sitting by July 20 and, at this writing, the new brood is making such a racket as to suggest that it will be a matter of but a few days before they are on the wing.

These four positive records, abetted by others which have not been followed so accurately, are convincing proof that certainly these two species frequently raise two broods in one season.

Two other records are worthy of note. On June 23, I collected a set of five eggs of the Audubon Warbler (*Dendroica auduboni*) from the same tree in which the second robin nested. On June 28 this same pair of birds (identification beyond question) had completed another nest in a tree not twenty feet distant, and on July 4 this nest contained a set of four eggs upon which the female was sitting. This same pair of birds, in all probability, had raised young in a tree mid-way between these two nests, in 1932.

On June 28 a set of three eggs was collected from the nest of a Western Wood Pewee (*Myiochanes richardsonii*) above the baseball diamond at camp. For several years past this spot had been the location of a nest of this pair of birds and young have always been raised safely. After the eggs were collected the nest was left undisturbed but was carefully watched. The very next day the female started tearing down the old nest, transporting the material to a new location some fifty feet distant. In three days the new nest was complete and two days later, upon investigation, it was found to contain one egg. The next morning a Wood Pewee was found in a dying condition on the parade ground. Careful attention failed to bring it around and it died several hours later. Examination indicated that it was "our" female and, because the nest was no longer tenanted, our conclusions were evidently right. One bird continued to frequent this area as in the past, but the little experiment which we had so carefully observed came to an end. I believe this constitutes a record and in addition answers the question which I have so often asked: What becomes of Pewees' nests which have been disturbed?

San Jose State College, San Jose, California, August 26, 1933.

SOME EARLY SUMMER FOOD PREFERENCES OF THE AMERICAN RAVEN IN SOUTHEASTERN OREGON

By A. L. NELSON

No comprehensive study has ever been made to determine the economic status of the American Raven (*Corvus corax sinuatus*), although there is, apparently, a general belief among sportsmen that any beneficial habits possessed by the raven are nullified by its depredations upon nestling birds and birds' eggs. It is not questioned that depredations are made on both nestlings and eggs; but the extent of this destruction, and the percentage relationship between these items and other foods, have not been sufficiently studied. Before any general condemnation or laudation of the raven is to be taken seriously, laboratory analyses must be made of the contents of a large number of stomachs collected at all seasons and from all parts of the range. These analyses must be supplemented by intensive field studies during the months of May and June, when damage to birds' nests is likely to be greatest.

The data presented in this report are based on examination of the stomach contents of 18 adult and 66 nestling birds, the latter representing 18 broods. The series was collected in the vicinity of Lake Malheur Reservation in southeastern Oregon from June 1 to 23 by Messrs. George M. Benson, Reservation Protector, and Alvah M. Springer. The number of stomachs examined is ample to reveal food preferences of ravens in this general locality for the month of June. Particular consideration is given here to those items in the diet upon which the apparent ill reputation of the raven chiefly rests, namely, birds and birds' eggs.

Birds.—Bird remains, occurring in 21 stomachs, represented only a little more than $6\frac{1}{2}$ percent of the total food. They amounted to only a small part of the contents of any one stomach, as a rule less than 10 percent. In but 3 stomachs was the proportion of bird remains in excess of 50 percent, two of these being stomachs of adult birds. Identification was possible of only a few of the bird fragments in this series. In one stomach, feathers and bone fragments of a coot were distinguished, and in another, those of a sparrow. Nestling birds were represented in 7 stomachs, but the fragments were not sufficiently diagnostic to permit positive identification. In some stomachs the remains were in an advanced state of digestion, and in others they consisted of only a trace of feather fragments, presenting in either case no adequate basis for identification. Bird remains occurred approximately $2\frac{1}{2}$ times more frequently in the diet of nestlings than in that of adults, being found 19 times in stomachs of the former, and twice in those of the latter. The bulk percentage of bird remains, however, is less in the nestling diet, the percentage amounting to 6.37 for nestlings and 7.72 for adults.

Birds' eggs.—Shell fragments of birds' eggs were noted in 14 stomachs, forming by volume 2.03 percent of the bulk. Four of the occurrences were in stomachs of adult birds and the remaining ten in those of nestlings, nine of which were accounted for by two broods, every bird in each brood having some shell in its stomach. The fragments in each of the latter cases were all small, of similar thickness, and uniform whitish in color; it is not unlikely that each brood had been fed from a single egg. In one stomach, the fragments were fairly large, and it was possible to identify them as those of a coot's egg. Another stomach contained fragments of eggs of two species of birds, neither definitely identified, although one set of fragments might possibly have been from the egg of a thrush, and the other set from that of a sparrow. In still another stomach, the fragments may possibly have been from the egg of a duck. Specific determination of eggs from fragments of shells is almost impossible in most

cases. Too much caution cannot be exercised in the interpretation of the above data, chiefly because 29 of the 35 occurrences of bird remains and egg shell fragments were from stomachs of nestlings.

Comparison of the stomach contents of nestlings within a brood often disclosed the fact that repeated occurrences of an item meant division of a single catch among young birds, rather than the making of many separate kills. For that reason, since 19 of the bird occurrences were from stomachs of nestlings of nine different broods, and only two from those of adults, the 21 occurrences of bird remains are not to be interpreted as 21 different kills. The actual number of birds taken by all ravens could not be definitely ascertained, because it was not always possible to determine whether the fragments in different stomachs from the same brood were those of a single bird. If the occurrences of bird remains in the stomachs of nestlings within a brood are the result of the division of one catch, the minimum number of depredations involved in the feeding of the nestlings would be nine; and the total number of ravens involved in all depredations upon birds would be eleven, indicating that the minimum of one raven out of every 8 had resorted to such activities. This minimum ratio, while possibly underestimated, is much more accurate than one which would result from the assumption that the number of occurrences represented the number of kills.

The interpretation of the data on egg-shell fragments in stomachs offers additional problems. The bulk percentage of this item is not an accurate indicator of the amount of egg material consumed, since the shell alone, and in many cases only a part of it, enters into the percentage. In lieu of this weakness, it will be advantageous to determine how frequently the ravens indulged in the taking of eggs. Granted that repeated occurrences of egg shells in stomachs of a brood represent the division of a single egg, that is, when structural characters point to the fact that the fragments of shell could have come from the same egg, we can conclude that a total of six ravens, five of them parents, had made such depredations. This means that a minimum of at least one bird in every fifteen was guilty of nest plundering. Regardless of the raven's technique in getting the contents of an egg, whether by swallowing the whole egg, or by piercing it and then sucking out the contents, at least part of the shell would unavoidably be taken, and since a mere trace of shell can readily be detected in stomachs, very few, if any, occurrences of eggs would pass unnoticed in examining stomach contents. The frequency ratio, however, also has its limitations in giving an understanding of this complex problem.

The presence of shell fragments in stomachs may not always indicate damage to other species of birds. Some of the shell fragments might have been broken bits of hatched eggs picked up as grit. It is not inconceivable that ravens may occasionally rifle nests of their own kind. In addition, eggs may be taken from nests that have been deserted owing to some cause other than interference by a raven. In these cases, on the basis of stomach analysis alone, the raven would unknowingly be accused of depredations that were not actualities. Another similar, but probably rare, possibility is that unhatched eggs may be taken from a nest after incubation has been completed. In this case no damage would be incurred; although, again, on the basis of stomach analysis, it would unavoidably be so considered.

In estimating actual damage caused by nest or egg destruction, there must be taken into consideration the innate ability of a species to nullify at least partly the effect of these depredations. For instance, if a raven causes the destruction of a nest containing 10 eggs, and a second attempt at nesting is successful in the rearing of five young, then the actual damage would be not more than half so great as at

first indicated. (This would be true only if the rearing of a single brood were the rule.) Damage may similarly be offset if the raid occurs before incubation begins, in which case there is a possibility of stolen eggs being replaced. Better understanding of these important problems will require many hours of observation in the field. In the final analysis, the damage which the raven inflicts on various species of birds by nest plundering must not be determined alone by the number of eggs taken, or by the number of nests destroyed, but by the effect of these raids on the final and total hatch for the season.

Mammals.—Juvenile rabbits fall easy prey to a wide variety of predators, and it appears that the American Raven is fully capable of taking a significant toll of the yearly increase. In this study, rabbits occurred in no fewer than 43 stomachs, or in approximately 51 percent of those examined. Juvenile rabbits, probably less than $\frac{1}{2}$ grown, were taken most frequently, with fragments of as many as four being found in a single stomach. Mr. Benson reports that ravens often feed on rabbits that are killed on the highways, and no doubt some of the occurrences reported in this study had their origin from this source. Rabbit remains formed a larger part of the diet of nestling birds than that of adults. Examination showed that thirty-five of the sixty-six nestlings, or 53 percent, were fed on rabbits, while eight of the eighteen adults, or 44 percent, had fed on these animals. In the nestling stomachs, rabbits comprised 37.07 percent by bulk of all the food taken, while in those of the adults they amounted to 23.88 percent of the total food. The average percentage for adults and nestlings combined was 34.26, which is the largest percentage revealed in this study for any single food item.

Other rodents, represented by fragments of pocket gopher (*Thomomys* sp.) and chipmunk (*Eutamias* sp.), comprised less than 1 percent of the bulk food. Chipmunk fragments were found in the stomachs of two nestlings of the same brood, but undoubtedly represented only one kill.

Amphibians and reptiles.—From the standpoint of bulk percentage amphibians stand fifth on the list of food items, with a percentage of 6.59. With the exception of one occurrence of a true toad (*Bufo* sp.), spadefoot toads (*Scaphiopus hammondi*) made up the entire amphibian portion of the diet. These toads occurred in thirteen stomachs, and no fewer than forty-three individuals were noted, most of them being young, probably only recently transformed from the larval state. The bones of as many as sixteen individuals were found in a single stomach. The nestlings had a greater percentage of amphibian food than the adults, the figures being 7.40 percent for the former, and 3.62 percent for the latter.

Lizards were only slightly less important than toads in the diet of these eighty-four ravens. They were present in twenty stomachs, eighteen of which were from nestlings and two from adults. The total percentage of reptile food for nestlings amounted to 6.43, for adults 0.84, and for all birds 5.23. The majority of lizards recorded were of the genus *Sceloporus*, although in one stomach fragments of a horned toad (*Phrynosoma* sp.) were noted. In stomachs that contained only a few bone fragments it was impossible to make even generic identification.

A few bone fragments and scales of an undetermined snake were found in a nestling stomach, amounting to only 1 percent of the stomach contents of that bird, and to an insignificant fraction of the total food of the group.

Fish.—The scales of an undetermined fish made up 3 percent of the contents of one stomach, but represented an insignificant percentage of the bulk. This item is likely to be of carrion origin.

Insects.—Insects, as a group, stand next in importance to the rabbit as a food item, amounting to about 33 percent of the total. The adults had a greater per-

centage of insects in their diet than did the nestlings, the percentage for the former being 48.56, and for the latter 29.74. This is a departure from the usual rule in birds, but in this case the deficiency of insects in the nestling diet was made up by the greater percentage of rabbit, the capture of which may have been less time consuming than the collection of a sufficient number of insects to satisfy the ever hungry broods.

In the order of their importance in the diet, from the percentage standpoint, representatives of the following seven orders of insects were identified: Homoptera, Diptera, Hymenoptera, Coleoptera, Lepidoptera, Orthoptera, and Heteroptera. The orders Orthoptera and Heteroptera were so sparsely represented as to be insignificant, together amounting to less than $\frac{1}{4}$ of 1 percent of the total diet. The insect groups will be separately discussed.

Some difficulty is encountered in determining which insects represent primary or first-hand food and which represent secondary food, that is, insects that were contained in the stomachs of lizards, toads, or insectivorous birds that may have been eaten. In some cases, the stomachs of lizards and toads were still sufficiently intact to make quite certain which insects should be considered as of secondary incidence. For instance, in the case of the raven that had eaten a horned toad, the stomach of this lizard was partly intact and was observed to be gorged with ants, many of which were also mingled with the general stomach contents of the raven. Consequently all the ants, whether in the horned toad's partially intact stomach or found with the other food material, were reckoned in the lizard percentage. The presence of small insects in raven stomachs when remains of lizards, toads, or insectivorous birds are absent from the contents leaves no choice but to consider them primary food, although they may seem to be items that would be beneath the raven's attention. The percentage of insects of questionable origin, however, is small, probably being less than 1 percent.

Homoptera.—From the standpoint both of quantity taken and of frequency of occurrence, cicadas stand out as the most important kind of insect taken by this group of ravens. They aggregated no less than 18.70 percent of the total food, which is about 56 percent of the whole insect diet. They occurred more frequently in nestlings than in adults, having been present in twenty-four stomachs of nestlings for a frequency percentage of 36, while they occurred in four stomachs of adults for a frequency percentage of 22. The bulk percentage of cicadas in the nestling diet amounted to 21.08, and in the adult diet 10.10. In sixteen stomachs the percentage for these insects was above 70 percent of the total contents. At least 550 individual cicadas, predominantly adults, were present in the contents of twenty-eight stomachs, this being the total number of stomachs in which they occurred. The genera *Okanagana* and *Platypedia* were represented; one stomach alone contained as many as 101 individuals of the latter genus. These insects are of good size and no doubt their bodies contain a great deal of nutritious material. They emerge from the soil in large numbers from more or less localized areas and so, probably, can readily be captured in good numbers; all things considered, they seem to make an ideal nestling food.

Diptera.—Diptera were present in this series of stomachs chiefly in the form of sarcophagid, or "flesh fly", larvae and pupae. They were usually associated with carrion, although this does not mean that they were accidentally taken when feeding on carrion. In some cases, they were present without a sign of carrion, indicating that the bird had probably visited some carcass especially to pick them out. The larvae and pupae together occurred in eleven stomachs, four of which were of adult and seven of nestling birds, and made an aggregate percentage of 2.76. Other

Diptera taken included the larvae of Stratiomyidae, or "soldier flies", of the genus *Odontomyia*. They were present in the stomachs of two young from the same brood, the parents of which were not collected. One of these stomachs contained 220 of these larvae to the exclusion of all other food; the other contained 27 individuals, which made up 92 percent of the contents. These soldier-fly larvae aggregated 2.28 percent, and Diptera of all kinds 5.04 percent, of the total food.

Hymenoptera.—Hymenoptera stand third in importance in the insect diet by virtue of the presence of saw-flies of the genera *Atomacera* and *Sterictiphora* in three stomachs of adult birds, in each of which they were present to the extent of 90 to 100 percent. In these three stomachs, there were more than 8,200 individuals of these insects present. Not knowing the circumstances under which they were taken, it seems remarkable that such great numbers of these small insects could be collected by a raven. They were all in about the same state of digestion, and so must all have been taken within a short period of time. The presence of these saw-flies in a swarm seems to be the only way to account for their being captured in large numbers. One of the above three stomachs contained also eleven individuals of a parasitic wasp of the genus *Tiphia*, which represented 6 percent of the contents of that stomach. These three genera together made up 16.06 percent of the food of adult birds, and together with one undetermined Hymenoptera in the stomach of a young bird constituted 3.47 percent of the food of all birds.

Coleoptera.—Beetles, as a group, although usually present in small numbers and representing only small percentages of individual stomach contents, occurred most frequently of all insects, and were present also in the greatest variety of forms. In all, twenty-eight genera of beetles representing eleven families were found in this series of stomachs. Species from the families Tenebrionidae, Scarabaeidae, Dermestidae, Carabidae, Curculionidae, and Silphidae were most common. The genera *Sphaeriontis*, *Eleodes*, *Coniontellus*, *Pocalta*, *Dermestes*, *Calosoma*, and *Necrophorus* made up 72 percent or nearly $\frac{3}{4}$ of the beetle content. Considering all stomachs together, beetles occurred in approximately 30 percent of them, having been found in 34 of the entire 84. In the adult ravens, beetles were present in nine stomachs, or in an even 50 percent, while in the nestlings they were present in twenty-five, or in about 37 percent. The total percentage of beetles in the diet of adults was 8.17, and in that of nestlings 2.12, a proportion of almost 4 to 1. The bulk percentage of beetles in the food of all birds was 3.42.

Lepidoptera.—Only one stomach of the adult ravens contained Lepidoptera; at least 78 fragmentary chrysalids of an undetermined butterfly were present in this one stomach to the exclusion of all other food. They were in an advanced stage of digestion, but the number was easily determined by counting the cremasters or terminal hooks. Of the nestlings, four had been fed caterpillars, one stomach containing twenty individuals, and another as many as 30. These larvae were probably all from the family Noctuidae, commonly known as cutworms. Lepidoptera amounted to 2.13 percent of all the food.

Orthoptera.—Grasshoppers and their allies were taken uncommonly by the ravens during the breeding period. The adult ravens had not taken any grasshoppers, and they were recorded for the young birds in only three stomachs, the maximum percentage for one stomach being 5. The grasshoppers noted were species of the family Acrididae, or short-horned locusts. Two stomachs contained sand crickets (*Stenopelmatus* sp.), fragments of a single individual being present in each stomach, and amounting to 1 percent of the contents of each. The total aggregate percentage for this group was only 0.15. Undoubtedly, these insects enter into the

diet of ravens to a much greater extent at other seasons. A number of raven pellets collected by Smith Riley from the Malheur Lake area during July in 1923, and examined by E. R. Kalmbach, revealed that the birds were taking large numbers of grasshoppers.

Heteroptera.—These insects, the true bugs, were taken so rarely as to be insignificant in the food column. Stink-bug (Pentatomidae) fragments were recorded in two adult stomachs, comprising 2 percent of the contents in each case. The percentage of Heteroptera for all birds amounted to only 0.06.

Scorpions.—Scorpions were occasionally taken by these ravens, being present in three adult and seven nestling stomachs. In the adults the bulk percentage amounted to 2.22, and in nestlings to 0.41, making a combined total percentage of 0.80. The highest number of individuals recorded for any one stomach was four, these being present in a nestling stomach, and identified as *Vejois boreas*.

Vegetable matter.—Very little in the way of vegetable matter was consumed by these ravens. The only vegetable item taken by adults was corn. It was present in two stomachs, being recorded to the extent of 35 percent in one and 2 percent in the other. Of the nestlings, eight stomachs contained vegetable material, two stomachs containing corn to the extent of 42 and 33 percent, respectively, and three, containing oats in percentages of 62, 15, and 8, respectively. In addition, three stomachs contained fibrous, bark-like material that may have been picked up as debris. The determined vegetable material, corn and oats, amounted to 2.35 percent of the total diet; and the undetermined vegetable fiber, some of which may have been accidentally taken, amounted to 0.89 percent.

Carrion.—The natural association of certain insects, such as sarcophagids, dermestids, silphids, and others, with dead and decaying flesh is of valuable assistance in establishing the carrion origin of certain vertebrate items in stomachs. It is certain, however, that at times the use of these insects as carrion indicators will lead to erroneous interpretation; because, in some cases, the indicators will be present in the stomach almost to the exclusion of other food, showing that ravens sometimes visit carcasses to feed on the scavenger insects, without necessarily partaking of the carrion itself. To illustrate the difficulty, let us suppose that a juvenile rabbit may be captured and devoured by a raven, and, before the rabbit has been completely digested, the bird visits a dead animal and eats a number of dermestids and sarcophagids. It is obvious that the diagnosis of rabbit as carrion in such an instance would be a misinterpretation. Carrion was present in thirteen stomachs of this present collection (eight of them containing sarcophagid larvae or dermestids), and represented 7.52 percent of the total food.

Extraneous matter and gravel.—Occasionally, small sticks, pieces of bark, and other debris were found in stomachs. This was particularly noticed in the case of nestlings and for those adults which had fed upon carrion. Gravel, in small amounts, occurred in the raven stomachs frequently, some of which, no doubt, was taken accidentally, and some probably intentionally as grit.

Pellet analysis.—One nest pellet was collected and upon examination yielded bone fragments of 1 *Scaphiopus hammondi* and some undetermined egg-shell fragments. The bones of the toad had not been affected to any great extent by digestion.

Note.—Assistance in determining insects is acknowledged as follows: Miss A. Swords, Coleoptera; W. L. McAtee, Cicadidae; and J. R. Malloch, Diptera and Hymenoptera. Acknowledgment is also made of assistance in the identification of reptiles and amphibians, rendered by F. M. Uhler.

United States Biological Survey, Washington, D. C., April 5, 1933.

IN MEMORIAM: GEORGE FREAN MORCOM

MARCH 16, 1845—MARCH 25, 1932

WITH PORTRAIT

By HARRY S. SWARTH

If in the following pages the narrator's personality seems unduly to intrude itself the explanation lies in the fact that the relations between the subject of this biography and the writer thereof were such as ordinarily obtain between father and son. Events that affected one inevitably affected the other as well, and this continuously throughout the years. Some of the particulars of Mr. Morcom's early life I have obtained from his sister, Mrs. Julia Davey, of Plymouth, England; the greater part of this account is derived from memories of what he has told me regarding his boyhood, and from my own memories of his later years.

Quiet and retiring as his life latterly had been, Mr. Morcom's decease constitutes the breaking of a link with the past that to some of us suddenly makes ornithology of the middle nineteenth century seem very remote indeed. Laying no claim to leadership at any time, he was acquainted more or less intimately with many of the leaders of the period. Throughout his life he retained the attitude of the interested amateur, an attitude that is perhaps more commonly found among naturalists of his native England than in America.

George Frean Morcom, one of ten children of Michael and Anna Morcom, was born at Aberystwith, Wales, on March 16, 1845, but the home of his remembrance was "Rosemundy," at St. Agnes, Cornwall, where he was taken at an early age and where his childhood and young manhood were spent. His father was interested in Cornish mines; his middle name came from another branch of the family that was connected with the well-known firm of biscuit manufacturers, Peek, Frean & Co. He was educated at Taunton College, and his library still contains a book given him as a prize at that institution.

Following student days there ensued a period of some delightful years in which field sports loomed large in importance. With the lovely south-of-England countryside over which to wander, with shooting and fishing privileges on certain large estates, and with a growing interest in natural history to give point to his rambles, it is no wonder that the mental picture of that period constituted a memory that remained vivid throughout all the years of his long life. Family ties brought him back again and again to revisit familiar scenes in Cornwall and Devon until advancing years rendered the trans-Atlantic trip too wearisome an adventure.

It was paleontology, I believe, that was first of the natural sciences to arouse his interest, an interest that was in rather curious contrast with his reluctance to accept the Darwinian concepts which were disturbing the English peace of mind so outrageously at that time. At any rate, the Cornish cliffs and mines yielded a fascinating harvest of fossils, a collection that was disposed of before he came to America, all but a few beautiful small ammonites, kept as paper-weights or table ornaments.

It was during this period that he became acquainted with the ornithologist and artist, John Gatcombe, a considerably older man, who may first have inspired the young George Morcom with an interest in birds. They remained close friends until Gatcombe's death, and Mr. Morcom forever treasured the memory of this association. One of his valued possessions, now passed on to my care, was a painting of a Garganey by Gatcombe. Another friend who chanced to exert a great influence over the course of his life was Professor Edward H. Day, an older man again, and

perhaps a college instructor, who taught him the rudiments of paleontology. Professor Day moved to America, to take a position on the faculty of Columbia University, and when a little later circumstances arose which made it necessary for George

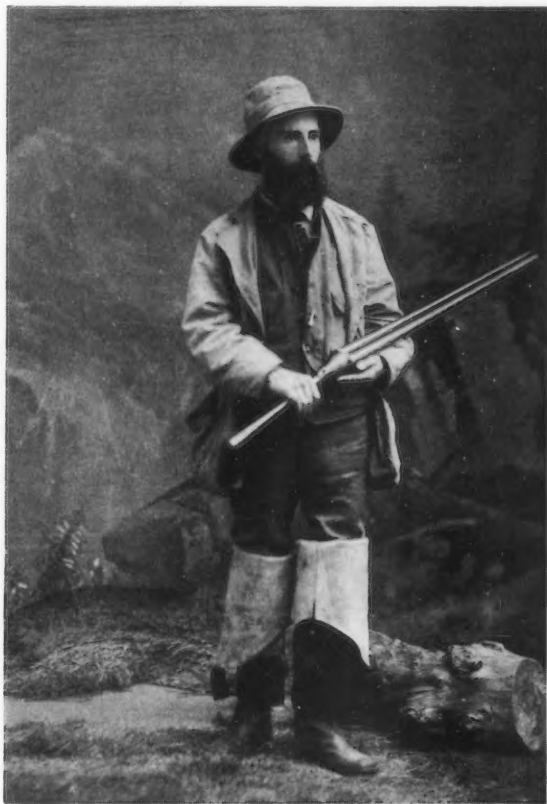


Fig. 2. George Frean Morcom

From a photograph taken at Los Angeles, winter of 1885-'86.

Morcom to make his own way in the world, it was Professor Day who wrote urging him to come to America and take advantage of the opportunities there.

It was assuredly a tremendous adventure for a conservative young Englishman from a country town to venture into the commercial struggle of an alien world; and it must have been as great a shock for a young man devoted to field sports to settle down to the dull routine of a business career. Once started, however, he never turned back. The friends of his middle age and later, seeing only the increasingly indolent and easy-going routine into which he ordered his days, could form no conception of the inflexible determination with which the younger man had pursued his settled

course; or of the shrewd business judgment that enabled him to hold his own in as bitterly competitive an environment as could be found the country over. Though all of his life he was in a sense an exile longing for home, and although he made occasional visits to that home, he never wavered in the determination to continue his labors until he could retire financially independent. He did for many years indulge in a vision of a final residence in England, but growing older, he declared very definitely that he could not give up the charms of the southern California climate in favor of any other place.

Just why he left New York for the even more barbarous surroundings of the Chicago of that period I do not know, but he did move westward after a brief visit with Professor Day. In Chicago there probably was—must have been—an unhappy period of boarding-house existence, but apparently the search for employment offered no great difficulty. He obtained a situation as a book-keeper almost immediately, on his own assurance that he was an expert in that line; that he had never before entered a single item in a set of books affected him not at all beyond inspiring a hurried and intensive study of the subject during the following evenings. The firm into whose employ he entered, A. S. Maltman & Co., commission merchants, comprised his entire business career, for he became eventually partner in the business and later on the sole owner. With characteristic conservatism he never changed the original firm name. His relations with his employer were of the happiest; during their entire lifetime they remained the closest of friends and eventually it was this employer's son who became executor of his estate. The commission business in Chicago at that time was a large and important industry, concentrated in a few blocks along South Water Street. The writer's childhood memory of the place is of a chaotic jumble of horse-drawn delivery wagons clattering over cobble stones; sidewalks intolerably crowded with sacked groceries, chicken coops and the like; drivers and clerks insanely hurried over their mysterious occupations; dingy and cluttered stores offering occasional glimpses of fascinating commodities, for the agricultural staples that must have formed the bulk of the trade made no such impression upon me as the occasional bear or deer hanging by a doorway, the bunches of ducks and geese, sometimes even ptarmigan and swans, or the occasional non-game bird or mammal, marvellous to see; the whole bordering alongside the amazing Chicago River, whose slowly bubbling, viscous surface and astounding smell formed a civic adjunct that was not to be forgotten even by a small child who was happily disposed to take everything for granted.

Once settled in business and it was the natural thing to look around for places to shoot, and Illinois and Indiana of the 1870's offered upland game and waterfowl in such abundance that a possible future scarcity entered into no one's calculations. Mr. Morcom's occupation brought acquaintance with farmers in the surrounding country, brought invitations to visit and hunt, and generally made him familiar with the game of the region. The Kankakee River became a favorite resort, and he has described to me how, on early trips, he saw Sandhill Cranes there in the spring time performing their remarkable courting "dances." Eventually, with certain Chicago associates, the Mak-saw-ba Club was organized, on the Kankakee River, at Davis, Stark County, Indiana, and there for many years he found his greatest pleasure, shooting and collecting. During the duck season his usual routine was as follows: To leave the office on Saturday in time for the evening's shoot. To enjoy the shooting Sunday morning and evening, catch a midnight train to the city, and, after perhaps a nap on the piled-up mail bags (the train crews were all friends), make a direct return from the railroad station to the office early Monday morning.

Some of his gun club associates took him on a deer hunt to the northern peninsula of Michigan, an expedition that was pleasant enough and successful enough (with a net bag of some thirty-odd deer!) but big game hunting made no appeal to him. He never repeated the experience nor did he ever take advantage of other such opportunities elsewhere.

Soon after Mr. Morcom settled in Chicago there occurred the great fire of 1871 that destroyed most of the city. He had already become acquainted with the families of Ernest and Auguste Swarth, and with them fled northward, to camp in the cemetery that later became Lincoln Park. From that time on they dwelt together. At different periods two houses were occupied, both adjoining Lincoln Park, and in each Mr. Morcom occupied the uppermost story. He was building up his collections during these years, both of birds and eggs, and the bulky cabinets took much space. The walls of his rooms were lined with shallow cases of mounted birds, the taxidermic work being done mostly by Dick Turtle, an old-time Chicago taxidermist who died in 1931. Many of these mounted specimens he had shot himself on his hunting trips, but among the others there were a number from Florida that were collected and mounted by Dr. J. W. Velie, curator of the Chicago Academy of Sciences, whom he had befriended. These cases of birds, after many travels (including exhibition at the Midwinter Fair, San Francisco), have wound up, some of them in the Museum of Vertebrate Zoology, some in the California Academy of Sciences, and some in the Los Angeles Museum of History, Science and Art.

In 1883 the Ridgway Ornithological Club was organized in Chicago, in which Mr. Morcom took an active part. The local membership included such enthusiastic ornithologists as Ruthven Deane, H. K. Coale, and B. T. Gault, besides others whose names are not so familiar to us today. Two issues of a "Bulletin" were published, a neat and creditable journal. The first number was given over to one paper, "Bird Migration in the Mississippi Valley," by W. W. Cooke and Otto Widmann, the first appearance of what was later on much enlarged in its better known appearance as a government publication. In the second issue there were two long articles, one on the birds of the Corpus Christi region, Texas, one on the birds of southern California and Arizona, both being based upon the results of field expeditions sent out by Mr. Morcom. Coale published the description of *Dendrocica aestiva morcomi* in this Bulletin.

During this decade field work was carried on with fair regularity, on the Kankakee River, Indiana, and in the Chicago region. There were two younger men in the Ridgway Club whose services were utilized in various ways, Henry K. Coale and Joseph L. Hancock. Mr. Morcom shot many birds on week-end trips, but lacked time to prepare them, and Coale and Hancock, both excellent preparators, skinned the birds that he shot, and sold him, besides, many more of their own take.

In March, 1884, Mr. Morcom sent Hancock to Texas to collect birds. The trip was cut short before it was well begun, as Hancock contracted a severe illness, but the two weeks spent at Corpus Christi resulted in a surprising amount of excellent material. Hancock, in later years a practising physician in Chicago, gradually turned from ornithology and became an entomologist of standing. His excellent "Nature Sketches in Temperate America" is a well known book.

A son of Mr. Morcom's old friend Professor Day had settled in Colorado, and from this source various desirable birds were received, sent frozen during the winter months and skinned by Chicago assistants. Other correspondents in northern Michigan and Maine sent specimens that were similarly handled.

During his busiest years in Chicago, from 1880 to 1890, Mr. Morcom established many interesting contacts. Major Bendire, traveling between Washington and various western army posts, stopped at the house several times; among the present writer's vague childhood memories is a recollection of guiding a burly figure in a heavy overcoat upstairs where his arrival was awaited. Acquaintance was made with Dr. R. W. Shufeldt, and Mr. Morcom, being in a position to help him, supplied Dr. Shufeldt with many specimens of western birds in the flesh for use in the anatomical studies that the latter was then prosecuting. There was correspondence with Robert Ridgway also, though whether the two ever met I do not know. In his room there hung a painting, by Ridgway and received from him, of two Kamchatkan Sea Eagles. Mr. Morcom's liking for Ridgway and admiration for his accomplishments led to his sending to the National Museum various specimens from time to time, birds that he believed might be especially desired. Among his effects I find formal acknowledgments from the Smithsonian Institution, one, under date of April 18, 1889, listing "a goose supposed to be a hybrid between *Branta canadensis hutchinsi* and *Chen caerulescens*," another, April 8, 1890, mentioning "a series of U. S. water fowl (ducks, geese and mergansers) in the flesh." Another gift of later years was the puzzling hummingbird that afterward became the type of *Atthis morcomi* Ridgway.

For a long time after leaving England correspondence was continued with different British ornithologists. To Gatcombe there were sent thrilling accounts of new birds, new experiences and wonderful shooting. Letters were exchanged, too, with Howard Saunders, for whom Mr. Morcom had always an intense admiration. One such letter written in February, 1887, may be inserted here, if for no other reason because of the information it contains of the authorship of a review in the *Ibis* of the first edition of the A. O. U. Check-List.

Dear Mr. Morcom,

Your letter of the 5th ulto was shortly followed by the box of bird skins, which I examined, and as there was nothing amongst them to tempt me to avail myself of your kind offer, I took the entire contents down to the British Museum. You may perhaps have received an official letter of thanks as this was a long time ago.

I envy you the power of acquiring the root of all evil, but it is to be hoped that you will not do as so many of our Indian officers and civilians do: stop a little too long in harness. I have just lost two good friends that way.

You ask what I think of A. O. U. Code and C. list. See the 'Ibis' review of it which is far more gently worded than it would have been had I not visited the U. S. and learned to like many of the authors. Stejneger is a nuisance in this respect, although personally I like him much.

Thanks for your excellent photograph. I hope a letter of mine has not gone astray, but you do not mention it, so I do, because I am such a bad correspondent that I cannot afford to lose the credit of a single letter!

I have not heard from Gatcombe lately; my own fault, no doubt. That's a horrid business of the train at White River, and coming so close on this other, too. Matters look black over here, but good things keep up their price.

Yours very truly

Howard Saunders

? Can it be that you do not see the *Ibis* ?

Saunders and P. L. Sclater both visited Mr. Morcom during their trip to America in 1884. In 1896 there was correspondence with J. H. Gurney regarding the California Condor. The Morcom collection contained two Condor eggs, of which Gurney desired photographs for the Norwich Museum. These, of course, were supplied.

In the fall of 1885 the Swarth families, accompanied by Mr. Morcom, made their first visit to Los Angeles, remaining there until late in the spring of 1886. He had then his first experience of California Quail shooting, magnificent sport in those days, with some duck shooting on historic Nigger Slough; a little bird collecting was also accomplished. Of greater importance was the contact made with Frank Stephens, whom he sent on a collecting trip that lasted from April 1 to July 1, 1886. During that period Stephens crossed the Colorado Desert from Palm Springs to Yuma, and visited also San Geronimo Pass, the San Bernardino Mountains and the Mojave Desert. He made a magnificent collection of birds which formed the basis for a report that was published in the Bulletin of the Ridgway Ornithological Club, referred to above. This was the beginning of a strong friendship, for though the two men did not meet very often, Mr. Morcom to the end of his life cherished the acquaintance and never lost an opportunity of praising Frank Stephens, both for his personality and his achievements.

When the results of Stephens' field work were received a generous selection therefrom was sent to the British Museum. At about the same time he purchased from Stephens the type specimen of the recently described *Colinus ridgwayi* and sent that to the British Museum also. There are few bird species the description of which has aroused more acrimonious published discussion than in the case of this very distinct and attractive quail. Anyone interested in the historical side of ornithology could spend some pleasurable hours in reading in chronological order the various contemporary papers on this subject, written by several individuals and published in several different journals.

The period from the summer of 1886 to the end of 1891 was spent in Chicago. For two or three years his collection received a good deal of attention; but business responsibilities became heavier as time passed, becoming eventually so burdensome as to leave little time and less energy for recreation. His health visibly failed, and when he finally sold his business, at the end of 1891, he was on the verge of a serious nervous and physical collapse. In the interim the southern California "boom" of the eighties had waxed and waned. Mr. Morcom and the Swarths had all acquired real estate during their first visit to Los Angeles, but had sold most of it a little later, being of the very small minority that profited in that extraordinary episode. So the charm of the country remained with no bitter alloy of resentment, and a general return to California was decided upon.

It was a very quiet and subdued California indeed, southern California of the early nineties, and we settled down in a country-side, at the western edge of Los Angeles, where grain fields which had been real-estate "sub-divisions" were checkered with cement sidewalks and rows of shade trees; where stately mansions stood empty far from any community; and where rusty railroad tracks extended for miles to pleasant but deserted termini. "Business" was given up, once and for all, and the course of his life now was not unlike what it might have been in a quiet English village.

I (the writer of these lines) was in the grammar school stage. I could not remember a time when I had not had the run of rooms where bird skins and birds' eggs were being handled, I had always had available books about natural history, and, altogether, to investigate animal life, particularly birds, seemed not merely obvious but the inevitable course of existence. I learned to make bird skins of a sort and thus became useful, for Mr. Morcom never did make a satisfactory specimen. The surrounding country was surprisingly rich in bird life and we explored it together. My own routine, followed for some years, was to arise at dawn and

take a two-hour walk before breakfast and departure for school. Whatever I shot was placed on Mr. Morcom's study table for inspection; then, with occasional additions of his own shooting during the day, examined by us together on my return in the afternoon, and skinned by myself before the day was over. Together we learned California birds, one by one, with the aid of an excellent library.

The British Museum "Catalogue of Birds" was on his shelves, complete so far as issued, and the handling of these volumes was, for me, in itself such training as I could not otherwise have obtained. For rough-and-ready identification, though, our stand-by's were Baird, Brewer and Ridgway's "Birds of North America," Cooper's "Ornithology" (with colored illustrations), and the octavo edition of Audubon's "Birds of America." Say what you will of "keys" and other such aids to identification, there is nothing to equal good colored pictures! And so, species by species, the middle-aged man and the youngster learned to recognize the birds under a variety of circumstances. One could never forget, for example, the Wren-tit and the Black-headed Grosbeak, after having found unfinished nests in distant Laurel Cañon, and then enduring the nerve-racking wait, counting the days until it would be time to go and collect these heretofore unknown marvels.

Our collecting grounds were varied. A narrow-gauge "dummy line," occasionally in operation, terminated near a cross-roads post-office labelled "Hollywood," and the brush-covered hills and cañons nearby were thoroughly explored. In the mountains behind Pasadena, Millard's Cañon and the Arroyo Seco were most readily accessible from Los Angeles. Along the sea shore, Santa Monica, Redondo, San Pedro, and Long Beach were small communities, separated by many miles of intervening beaches that were ordinarily deserted except for an occasional fisherman. The cross-roads signal station Cerritos, on the Long Beach railroad, was the gateway to an enormous area of willow-grown bottom lands that had a very distinctive avifauna. But the place he loved best was the San Fernando Valley, an ideal quail country and a region that never ceased to yield surprising novelties so long as natural conditions were suffered to remain. The immediate environs of our home supplied the subject matter for the present writer's first published writings; our joint observations thereabout materialized in the inevitable local list, this entitled "Avifauna of a 100-acre ranch."

While attending school in Los Angeles I soon became acquainted with other boys who also collected birds and eggs and who were to constitute some of the first membership of the Cooper Club. These new acquaintances came home with me, they were cordially received, and friendships were then made that endured throughout Mr. Morcom's life time. He was sympathetic toward our efforts in forming first the Southern California Natural History Society, and later the Cooper Ornithological Club, though he did not join the latter club until years later, and he was skeptical as to the possibility of supporting a journal. The "Bulletin of the Ridgway Ornithological Club" had not been a financial success, and he had been called upon to help Taylor with the "Nidiologist" and Hoffman with the short-lived "Avifauna," so that although when the time came he contributed to the new "Bulletin of the Cooper Ornithological Club" it was without undue optimism as to its future.

In the early nineties A. M. Shields, an insurance broker in Los Angeles, was energetically building up a collection of birds' eggs, and he and Mr. Morcom soon became acquainted. In 1895 Shields employed O. W. Howard and H. G. Rising to undertake a trip to the Coast Ranges of San Luis Obispo County after the nest of the California Condor. The trip was successful (see *Nidiologist*, vol. 2, 1895, pp. 148-150) and an egg collected, but in the meantime Shields found that the

expense was more than he cared to assume (those were "hard times" in California) so Mr. Morcom took over that responsibility, and, later, the results of the trip. At about the same time he acquired a second Condor's egg from H. R. Taylor, but the particulars of this deal I never heard; it was doubtless incidental to financing of the "Nidiologist."

In 1895 we began to discuss Arizona as a collecting ground, and correspondence ensued with Major Bendire, who urged the Huachuca Mountains as by far the most promising section for exploration. The trip was planned and carried through to a satisfactory conclusion. Four of us participated, O. W. Howard, W. B. Judson, H. G. Rising and myself; the time occupied, February 29 to July 20. We drove from Los Angeles across the deserts to our destination, but returned by train. As a result of the summer's experiences, Howard returned to Arizona that fall, and remained resident there for most of the time during the next few years. I, myself, with Mr. Morcom's assistance, made collecting trips to Arizona from time to time, gathering specimens and data for a list of the birds of the territory, which he was urging me to write.

He was anxious to see me settled in museum work, but public natural history museums were non-existent in California at that time. So, in 1904, when he made another trip to England, he took me with him to Chicago, and in some way best known to himself saw me established as an assistant in the Field Museum. This marked the end of our joint field excursions, and it was, in fact, near the end of his own active work. Not that he did not remain physically sound for many years more, but the country about Los Angeles was changing rapidly, and the particular sections that he favored were soon altered beyond recognition. Shooting in southern California was no longer a sport that could appeal to one who had known former conditions. Then, too, with the passing years he lost the urge to kill for sport; in fact, taking life for any purpose became increasingly distasteful. He had always encouraged birds about the house, and this interest was never lost.

Ever since retirement from business he had been devoted to tennis and he continued playing for many years after shooting was given up. Golf, too, attracted his attention when the game began to factor as an important element in American life, but it did not make the continued appeal of tennis. As actual collecting of birds and eggs was gradually abandoned he exerted himself even more than heretofore to keep in touch with others who were doing active field work. He attended Cooper Club meetings regularly during this period, serving as president of the Southern Division from January, 1907, until the end of 1912. He was elected an Honorary Member of the Cooper Club, November 30, 1922. It was a matter of pride with him that his set of the Bulletin of the Nuttall Ornithological Club and the Auk was obtained by subscription dating back to the first issue of the Bulletin. He became an Associate of the American Ornithologists' Union in 1886; in later years he became an Honorary Life Associate. In 1929 his collection of bird skins, some 3,000 in number, was donated to the California Academy of Sciences; he consequently was declared a Patron of the Academy.

The last ten years of Mr. Morcom's life witnessed a gradual cessation of activities, a gradual, almost imperceptible, physical decline. Always enjoying good health, he was resentful even of the suggestion of consultation with a physician; the even tenor of his existence during these later years was probably instrumental in his continued freedom from serious illness. Even at the end there was no definite disease, but a final slipping into unconsciousness, of a mind too weary to remain longer awake.

Mr. Morcom's greatest contribution toward ornithology lies in his aid and encouragement to others in the accomplishment of what they might not otherwise have done. In the case of my own efforts in this field, whatever the results achieved the opportunity came from him. Let this writing be my testimony thereto.

California Academy of Sciences, San Francisco, September 1, 1933.

AN ABNORMAL LITTLE FLYCATCHER

WITH TWO ILLUSTRATIONS

By WALTER W. BENNETT

Counting on the fingers of one hand, it only takes a few digits to number strange albino birds seen during his whole lifetime by almost any one ornithologist. So few are their numbers and so little understood are they that ornithological literature on the subject is far from replete. Hence, this study.

The uncommon attracts attention. One of the strange birds of the season of 1932 in Yosemite National Park, California, was a Little Flycatcher (*Empidonax traillii brewsteri*) that was not like others of her kind. If she had been rightly created, her colors would have been dull—harmonious with the willows she occupied not far from the foot of Yosemite Falls. She would have been rather olive above and whitish below, with light eye ring and wing bars. But she differed—because the crown, an area in front of the eye to the bill, and the auriculars were largely white. The nape and rest of the plumage were like others of the species. The eye was normal.

The cause of this white is not easily to be determined. It might have been partial albinism that was hereditary, transmitted by a parent that had this trait. Or it might have been caused by some disease that turned the particular feathers white just as the hair of a man may sometimes change prematurely. The white did, however, indicate that the color pigment usually present in feathers was lacking in part of the head plumage. The difference this white made in the life of the bird was, perhaps, worth noting.

She was discovered and shown to the writer June 30, 1932, together with her nest which contained four eggs. The bird's mate was apparently perfectly normal as to plumage; she was on the nest at the time. The nest was about five feet high in the vertical crotch of a small willow tree on an island bounded on one side by the swiftly flowing Merced River and on the other by overflow some three feet deep from high waters of the same stream. The nest was apparently the usual structure in size, shape and composition. There was another Little Flycatcher nest some hundred yards downstream, used by birds of normal colors which gave a good comparison in this study.

The first thing noted in approaching the nest was how conspicuously the white head gleamed in the sunlight. Normally the color of flycatchers is so dark as to constitute splendid protective coloration. It must have made her presence on the nest very evident to enemies and how she had escaped hawks and owls was a miracle, as both hunters were present.

The next peculiar circumstance was her extreme nervousness and great activity after leaving the nest. The bird could not sit still longer than a few seconds, but was continually darting here and there in seeming excitement. Day after day the



Fig. 3. The white head of this abnormal female Little Flycatcher showed conspicuously in the sunlight.



Fig. 4. The abnormal Little Flycatcher: the young one was more nearly like the normal male parent than like the white-headed female.

same was true, so it was not just temporary. Perhaps it was due to what might correspond to self consciousness in man. She might have been sensible of her whiteness.

But more likely it was due to other factors. In darting after insects the bird would miss the prey very often. It was quite noticeable that she lost her prey more often than other normal birds in the same neighborhood. And why not? A flycatcher, of course, sits on a dead twig or other unobstructed observation post, and when it sees an insect, darts after the victim. Many insects have a very limited field of vision. They probably can not clearly see a normal, dull colored bird until within a few inches. But certainly a brilliant white head in sunlight could be discerned much farther, especially if moving, and the creature would have a greater chance of taking alarm and escaping. And since hunting was more difficult, she had to increase her activity much more in order to catch the same number of insects as other, normal Little Flycatchers. Maybe that was why she had developed her "nervous temperament."

The story of the nest developed another interesting fact. On June 30 it had four partly incubated eggs, white, each with a few small brownish spots in a wreath about the larger end. On July 5 the female was watched for half an hour feeding young in the nest. On July 7 she was shading the young. When she left, it was found that there were one young about three days old and two infertile eggs in which the yolk was watery and turned as the egg would be turned. The fourth one had disappeared for some reason. One of the two infertile eggs was broken in handling, the contents drained out, and when the shell was replaced in the nest the female promptly carried it off about 100 feet where it was dropped.

The fact that one out of four eggs produced a healthy youngster was encouraging; but the fact that two eggs were infertile perhaps showed that there was a hereditary weakness of some sort as other observers frequently report to be the case with albino parents. Would this young one show white on its plumage and be thus abnormal like its mother, or would it be perfectly normal like the father? It was closely watched for this. It was found July 17 in its nest during the forenoon, but a few hours later the bird left and was located on some twigs only three inches above the ground. After feeding him the female carried away some excreta that had dropped on the ground. She would entice him to hop along the ground by getting near him, uttering a tender trill and fluttering her wings slightly. But the point of this all is that the feathers of this young at this stage were all dark where they should be dark, none white or even lighter colored than normal. Further plumages may have been different, but this one, at least, was more nearly like the normal male; the albinistic trait of the female parent did not carry through in this case.

The male parent did not act as usual. He was watched on July 5 and did not come near the nest at all. At no time during the whole observation was he seen to come and feed the young, bring any food to the female while she was on the nest, nor did he bring it to her while she was off. He would, however, escort the female back to the nest occasionally. He took no part in incubating. He would alight on low branches mostly two to five feet high and seemed content to watch from a distance. The most noteworthy fact was that the male would continually fly at, and pick at, the abnormal female, seemingly to destroy! Yet she must have had attraction for him, else why did he remain in the vicinity? Or was it merely the territory that held his interest?

But in spite of the white, whether hereditary or not; regardless of a possible hereditary weakness that left half her eggs infertile; even though enemies could

see her better than other Little Flycatchers and though it was more difficult to catch insect food; not counting the seeming cruelty of her mate, she did heroically raise in the nest one seemingly normal young. Those were trying family obstacles for one small bird to have overcome!

Oakland, California, September 26, 1933.

REMARKS ON THE PROPOSED RACES OF *SQUATAROLA*
SQUATAROLA (LINN.) AND COMMENTS ON
THE NOMENCLATURE

By JAMES L. PETERS

When Gregory Mathews in the first part of the third volume of his *Birds of Australia* (1913, pp. 69-72) applied *Charadrius hypomelus* Pallas (Reise versch. Prov. Russ. Reichs, 3, 1776, p. 699) to the form of the Black-breasted Plover wintering in Australia and supposed to breed in the northern part of eastern Siberia, he opened up a controversy that is not yet settled, and probably will not be for some years yet. His action in recognizing an east Asiatic race of *Squatarola squatarola* induced Thayer and Bangs the next year to name the North American bird *Squatarola squatarola cynosurae* (Proc. New England Zool. Club, 5, 1914, p. 23). Since that time some ornithologists have taken the view that there are three races of *S. squatarola*: the typical one breeding on the tundras of northern Russia and Siberia east to the Taimyr Peninsula; another supposedly larger form breeding from east of the Taimyr Peninsula to western Alaska to which Pallas' *hypomelus* has been applied; and the third, believed to be the smallest of the three, breeding in Arctic America from Point Barrow to Southampton Island, *cynosurae* Thayer and Bangs. Another group of ornithologists refuses to recognize any of the proposed separations, while a third and smaller group is willing to accept an east Siberian-west Alaskan form, but considers the North American the same as the European-west Siberian race.

The stumbling blocks to the whole situation lie in the fact that there is considerable individual variation in size in the Black-breasted Plover anywhere in its range, and in that it has never been possible to bring together an adequate series of breeding birds.

Mathews claims that in winter plumage the eastern form is grayer above, not as brown as the European bird; but his series were not seasonably comparable. Thayer and Bangs thought that a European specimen was darker than east Siberian examples. Stuart-Baker believes that the eastern race is "distinctly more gray," thereby agreeing with Mathews in this respect; but Baker is the only ornithologist to regard the eastern race as smaller than the European.

I have examined a small series of breeding adults of the three proposed races, all in comparable plumage, and can find no color characters at all. On the other hand a large series of birds in winter plumage would indicate that the color of the upper parts is variable, birds taken in the early fall being decidedly grayer above than specimens collected during the winter, whose dorsal coloration is distinctly browner.

Some years ago I tabulated a series of wing measurements of Black-breasted Plover; these measurements were later published by Friedmann (Bull. U. S. Nat.

Mus., no. 153, 1930, p. 161). I have recently measured more material and now incorporate the results with the original tabulation as follows:

| | | Wing |
|-------------------|--|-------------------|
| <i>squatarola</i> | Europe (migrants) | |
| | 3 ad. ♂ | 180-196 (190) |
| | 3 im. ♂ | 187-196 (190.8) |
| | 2 im. ♀ | 184.5-191 (187.7) |
| | Western Siberia | |
| <i>cynosurae</i> | 1 ad. ♂ | 194.5 |
| | Africa (winter visitor) | |
| | 1 im. ♂ | 177 |
| <hr/> | | |
| <i>cynosurae</i> | Arctic America (Point Barrow to Baffin Island) | |
| | 6 ad. ♂ | 182-196 (189.5) |
| | 3 ad. ♀ | 183-192 (186) |
| | Eastern United States (migrants) | |
| | 20 ad. ♂ | 180-205 (188) |
| | 20 ad. ♀ | 174-195 (185) |
| | Western United States (migrants) | |
| | 10 ad. ♂ | 182-198 (189) |
| <i>australis</i> | 10 ad. ♀ | 181-199 (187.7) |
| | <hr/> | |
| | Western Alaska | |
| | 1 ad. ♂ | 205 |
| | 2 ad. ♀ | 192-200 (196) |
| | Eastern Siberia | |
| | 2 ad. ♂ | 194-200 (197) |
| | 1 ad. ♀ | 196 |
| | Coast of China (fall migrants) | |
| | 3 im. ♂ | 189-199 (192.3) |
| | 1 im. ♀ | 192 |
| | Philippine Islands | |
| | 2 ad. ♀ | 198-200 (199) |
| | Java | |
| | 1 im. ♀ | 194 |

From this table it will be seen that there is practically no difference in size between European and North American (exclusive of western Alaska) birds, but that east Siberian and west Alaskan birds, together with migrants to Asia and the East Indies, average larger. Against the evidence indicated in my table as to the recognizability of the east Siberian race, must be weighed the measurements given by Snyder (Birds of Wrangell Island, etc., Univ. Toronto Studies, Biol. Ser., 1926, p. 13) for three birds from Wrangell Island, 2 ♂, wing 187-196 (191.5), 1, not sexed, wing 200, and the measurements given by Pleske (Mem. Boston Soc. Nat. Hist., 6, no. 3, 1928, p. 231) of 192-198 for east Siberian birds (regardless of sex, and number of specimens not stated).

The opinion that I hold until such time as really adequate breeding series may force a modification of my views is, first, that *cynosurae* is not distinguishable from *squatarola*; second, that the size difference between *squatarola* and the east Siberian form is not sufficiently great and the overlapping of measurements too large to merit recognition.

If the east Siberian race is to be recognized, its name cannot be *hypomelus* of Pallas. This name was used by Mathews, who simply gives "East Siberia" as the type locality; Hartert (Vög. pal. Fauna, 2, 1920, p. 1554) uses the same name; but, believing *hypomelus* to be a misprint for *hypomelas*, he used the correct feminine adjectival form *hypomelaena*, a change perhaps induced by the fact that Pallas him-

self (Zoogr. Rosso-Asiat., 2, 1811, p. 138), refers birds from the Arctic coast of all Siberia to "*Charadrius hypomelanus*." In the first place, *hypomelanus* 1776 cannot refer to an east Siberian race of this Plover; Pallas gives no locality but simply the statement "*Colit paludes borealis orae*."

Now Pallas' journeys between 1768 and 1773, reported on in his three volumes entitled *Reise durch verschiedene Provinzen des Russischen Reichs*, did not include the Arctic coasts of eastern Siberia, and he made only one journey to the Arctic coast anywhere and this well to the westward near the mouth of the Ob. Furthermore, the name *Charadrius hypomelanus* is nothing more than a substitute name for *Tringa helvetica* Linné, which is quoted by Pallas as a synonym. Ridgway (Bds. N. and Mid. Am., 8, 1919, p. 78) gives as the type locality of *hypomelanus* "from Lesnaja River, near the mouth of the Ob, to the Arctic Ocean." Doubtless this locality was gleaned from a long and painstaking perusal of Pallas' entire work, as there is no hint of it in the brief description on p. 699 of the third part. It may well be accepted as the type locality of *hypomelanus*. Pallas (Zoogr. Rosso-Asiat., 2, 1811, p. 138) describes *Charadrius hypomelanus* but gives no type locality other than the Arctic coast of all Siberia. It is quite evident that he was emending his earlier *hypomelanus*, merely referring birds from the Arctic coast of Siberia to the form that he had named in 1776. Furthermore he still quotes *Tringa helvetica* Linné in his synonymy.

Even if *hypomelanus* were to be considered as a different name, its application to the race of eastern Siberia would be extremely doubtful. Judging from the measurements published by Pallas he drew his description from a small specimen. There is of course nothing in the account of the colors of the bird that would help in a determination, since there seem to be no color differences within the species. Pallas' measurements are as follows:

| | |
|-----------------------------|-------|
| a summo rostro ad uropygium | 8". |
| rostri | 1". |
| poll. caudae aequalis | 2".9" |
| ulnae alarum | 7". |
| femur partis nudatae | 7". |
| tibiarum | 1".9" |
| digiti medii | 1".2" |

Since Pallas, as well as the other earlier Russian authors, is known to have used the English duodecimal system, I have converted his measurements into millimeters from that standard. The bill measurement of one inch (25.5 mm.) is very small, the range is from 27.5-30.5 for American and European birds. There is a good deal of doubt in my mind as to just what sort of a wing measurement "ulnae alarum" refers, but it will be noted that 7 inches or 178 mm. is just about the minimum for the wing of European birds measured in the customary American fashion; the tarsal measurement 1"9"=44 mm., about the minimum for *squatarola*; the middle toe dimension 1"2"=30 mm. is about the maximum for this measurement.

Charadrius pardela Pallas (Zoogr. Rosso-Asiat., 2, 1811, p. 142) is a substitute name for *Tringa varia* Linné (Europe). It is, therefore, entirely clear that none of Pallas' names is available for the east Siberian bird.

The first available name would appear to be *Squatarola helvetica australis* Reichenbach (Nov. Syn. Av., no. 5, 1851, p. 3), based on Gould (Bds. Austr., 6, pl. 12), and Reichenbach (Vög. Neuholland, no. 549, p. 334).

Museum of Comparative Zoology, Cambridge, October 10, 1933.

A FOSSIL QUAIL FROM NEBRASKA

WITH ONE SET ILLUSTRATIONS

By ALEXANDER WETMORE

The fossil deposits of the latter part of the Tertiary in northwestern Nebraska have been prolific in bird material of exceptional interest. The area in question has been under regular observation by Mr. Harold J. Cook who has obtained avian material on which several new forms have been based. Recently Mr. Cook has sent to me for examination a portion of the humerus of a gallinaceous bird that proves to be related to the peculiar Mearns Quail, found at present from central Texas and central Arizona south into Mexico. The extinct form may be known as

Cyrtonyx cooki sp. nov.

Characters.—Distal end of humerus similar (fig. 5) to that of *Cyrtonyx montezumae mearnsi* Nelson but about one-fourth larger; ectepicondyle relatively reduced.

Description.—Type, distal half of left humerus, collection of Harold J. Cook, no. H.C. 647, collected in the Upper Sheep Creek beds of the Upper Miocene, 17 miles south of Agate, Sioux County, Nebraska, by Harold J. Cook, in March, 1933. Shaft relatively strong, elliptical in outline near center, broadened and flattened below to support condyles; radial condyle elongate elliptical, with free end somewhat narrowed and slightly flexed toward center, roundly truncated at upper end; ectepicondylar process slightly projecting, marked off from adjacent condyle by a slight groove; ulnar condyle rounded, somewhat elongated, with distal surface projecting distinctly below adjacent surfaces; entepicondylar process projecting as an angular process; olecranal fossa rather poorly marked; brachial depression elongate elliptical, slightly impressed. Specimen strongly fossilized; shaft black, distal end grayish white.



Fig. 5. Three views of type specimen of *Cyrtonyx cooki*; $\times 1$.

Measurements.—Greatest transverse breadth across condyles 9.5 mm.; least transverse breadth of shaft 4.6 mm.

Remarks.—The projecting outline of the ulnar condyle indicates that this new form belongs in the alecrotropodous section of the Galliformes, while in restricted form of the entepicondylar region it agrees with the quail and not with the grouse. In both ectepicondylar and entepicondylar areas it is closely similar to modern *Cyrtonyx* in having the latter part especially weaker and less developed than in *Colinus*, *Lophortyx*, and *Oreortyx*. The fossil has no close connection with other extinct forms in its group so far as known.

Description of *Cyrtonyx cooki* adds another genus in our fossil avifauna of a type that is highly peculiar as indicated by its living representatives. The fossil is distinctly larger than living forms, but otherwise, so far as is shown in the contours of the humerus, it is closely similar to them. The Mearns Quail (*Cyrtonyx montezumae mearnsi*), the only living representative of the group in the United States, is an inhabitant of mountain slopes and the higher valleys, where it lives in the safe cover of grass and bushes. It is found from central Arizona and central Texas south to Coahuila and Sonora. Related forms range southward into Guatemala, so that the fossil record is a distinct northward extension for the group.

I have pleasure in naming this extinct species in honor of Mr. Harold J. Cook, of Agate, Nebraska, in recognition of his interest in the collection of avian material from Tertiary beds. Drawings illustrating the type have been made for me by Sydney Prentice.

United States National Museum, Washington, D. C., September 28, 1933.

FROM FIELD AND STUDY

Notes on Hummingbirds and Orioles.—Since reporting on "Hummingbird Boarders" in the *Condor* of September, 1931, the writer has maintained a constant supply of sugar syrup for the birds' use, and for more than two years there was always at least one male hummingbird making regular visits to the bottles, though there have been occasional changes in individuals. In times of abundant flowers, approaching darkness always stimulated free use of the artificial food, even though it might be somewhat neglected through the day. Very few new recruits, however, have been gained during the period from February to June. It is for this reason, as previously stated, that the benefit of the feeding had been confined almost exclusively to the resident Anna Hummingbirds (*Calypte anna*), in so far as adults were concerned.

However, at the beginning of July, 1931, a time of year prior to which the increasing scarcity of flowers has ordinarily caused the departure of the adult male Costa Hummingbirds (*C. costae*) from their local breeding grounds, one of them suddenly appeared at the feeding station, making constant use of it until August 14.

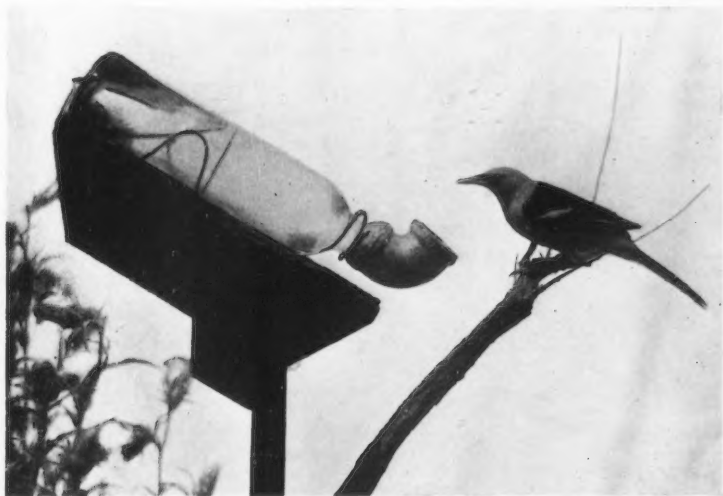


Fig. 6. Adult male Arizona Hooded Oriole, with feeding device made by cementing the neck of a bottle into a galvanized "ell". For hummingbirds only, a smaller bottle is more convenient, and a slotted cover over the open end of the ell will discourage bees, wasps and uninvited birds. Ants are kept away by passing the upright support through the slit bottom of a small can, which is then sealed so that it may be filled with water.

The following year he again presented himself in midsummer (assuming this to have been the same individual) and remained until September 4, taking up a station overlooking the syrup bottle and vigorously driving away the larger Anna Hummingbirds. In the spring of 1933, the first Costa Hummingbird to be seen, immediately showed his entire familiarity with the feeding devices and continued to use them until September 2.

While the September dates are not later than other records for the species in Los Angeles County, it is two months later than I have seen any other adult male Costa Hummingbird in this neighborhood. This instance, together with the unwontedly continuous presence of certain adult male Anna Hummingbirds, may well illustrate the

distinction between post-breeding movements in search of a more plentiful food supply, and true migration in response to some instinctive compulsion.

During July and August of each year the body plumage of this Costa Hummingbird has appeared slightly ragged or unkempt, but in 1933 it was again in excellent condition by the time of departure. There was no sign of molting of crown and gorget as long as the bird remained, and it may be assumed that this takes place later in the fall, as was found to be the case with the Anna Hummingbird.

The syrup for the hummingbirds has ordinarily been prepared by adding as much sugar as the cold water would dissolve. When the demands on this supply by a colony of Arizona Hooded Orioles (*Icterus cucullatus nelsoni*) became rather heavy, the solution in the bottle which they usually visited was reduced to half strength. The orioles seemed perfectly content with the diluted syrup, but the hummingbirds showed some dissatisfaction and for the most part transferred their attention to another bottle containing a saturated solution.

The relatively small number of female hummingbirds availing themselves of the sugar solution has been very noticeable throughout, though they have never indicated any lack of taste for this kind of food. The explanation for this preponderance of males at the feeding station is not readily apparent, so it may be attributed either to superior perspicacity or to such other causes as one's personal prejudices may suggest.

The extreme tameness of hummingbirds may produce an impression of lack of intelligence, as it did, in fact, to W. H. Hudson. I have noticed on one or two occasions, however, that this fearlessness is tempered by a wise discretion, in that the hummingbird refused to approach a cat as closely as it would have approached a person who remained equally quiet.

On April 26, last, when migrant hummingbirds were unusually numerous, it seemed that the various species were being attracted to the bloom of the avocado trees in greater numbers than to that of the adjacent orange trees. While the presence of bees attests that the former is well supplied with honey, one would not expect flowers of such small size and inconspicuous coloring to prove particularly attractive to hummingbirds.

On the same date I first observed a variation of the hyperbolic, diving type of "nuptial flight" of the Rufous Hummingbird (*Selasphorus rufus*). The flight of this individual started as ordinarily, passing the object of his attention at high speed with the usual three or four twanging notes, but instead of continuing upward in a smooth curve, the speed was abruptly slackened within twenty or twenty-five feet, and the flight continued horizontally for a few feet with spread tail and a weaving movement of the body, after which the bird turned about and mounted to repeat the flight from the same direction.

The squeaky "song" of the male Anna Hummingbird has elsewhere been referred to as peculiar to the breeding season, but it is actually heard at all times of year with substantially equal frequency. On April 27, 1933, I was attracted by a song of rather "amateurish" character, and found it to be produced by what appeared to be a female Anna Hummingbird, but doubtless was a young male of the current year, whose gorget was represented only by a small throat-patch. The Costa Hummingbird's two- or three-syllabled whistling call, though much less persistently uttered, appears to be almost exactly analogous to the song of *C. anna*.

In contrast to the preceding year, Rufous Hummingbirds were abundant during the spring migration of 1933, being in evidence almost constantly from February 26 to May 1. Male Calliope Hummingbirds (*Stellula calliope*) remained here, two miles from the base of the San Gabriel Mountains, until May 4, the latest date at which I have seen or heard them in the valley.—ROBERT S. WOODS, Azusa, California, September 4, 1933.

Dancing Movements of Old-World Gulls.—The unusual antics of *Larus canus brachyrhynchus* described by Laidlaw Williams (Condor, 35, 1933, p. 161) is a very well known habit in the small Old-World gulls, which I have seen on many occasions.

In my "History of the Birds of Suffolk" (p. 398), under *Larus canus canus* Linnaeus, the following account is given: "The dancing of the smaller gulls on mud to attract worms and stir up other food is well known, and this trait was observed by Hele in a captive Common Gull on a grass lawn." Such is instinct! And again

(p. 407), under *Larus ridibundus ridibundus*: "The dancing movements on the mud to bring up the mudworms (commented on almost annually as something new) was known to Hele over sixty years ago."—CLAUD B. TICEHURST, *Saxon House, Appledore, Kent, England, August 30, 1933.*

Traffic Mortality of Wild Life.—All of us, I think, are interested in the toll that modern traffic conditions exact of wild life. Statistics, however, are difficult to amass. Not only is it usually inconvenient to stop, alight, and examine each victim on an extended motor trip, but it is often impossible to decide how recent was its demise. The durability varies with the climatic conditions, amount of traffic, and position upon the right of way. I have known a defunct Barn Owl upon the extreme inside margin of a curve to remain recognizable for weeks, while several trucks may reduce a ground squirrel to an unrecognizable smear in as many hours.

It was my fortune during the past summer to cover by motor more than 10,000 miles in the course of three months. The plan followed was to go west by the Santa Fe Trail, cover considerable ground in California, and return east by the Lincoln Highway. No attempt was made to take a census of vertebrate remains upon the roads, nor to alight and identify every doubtful carcass. I anticipated, however, with no little interest such an opportunity to observe and digest conditions over the entire width of the country that should prove most destructive to wild life, namely, consistently high touring speeds in excess of fifty-five miles per hour.

I was agreeably surprised to find that the destruction encountered was much less than anticipated, particularly westward. The greatest mortality by far was among rabbits (chiefly *Lepus*), and next in point of conspicuousness, although probably not in actual numbers, was skunks. Both of these mammals meet disaster only during the hours of darkness. On the whole very few dead birds were seen, the remains recognizable from the car as avian averaging less than one in 15 or 20 miles, I should say. There were long stretches of country, particularly in the more arid sections, where no dead birds at all were seen. Or in contrast there was an area where three Barn Owls (*Tyto alba*) were noted in less than a dozen miles, and the motor car must here have proved to be one of the most serious hazards encountered by this species.

The birds were a mixed lot, with only one species definitely preponderant, and that, surprisingly, was the English Sparrow (*Passer domesticus*). We look upon this alien as being most adaptable, but it was the only one killed by my car on the trip, and several dozen were accounted for. This mortality is doubtless only seasonal, and was confined to the middle west. Here, in early September, these sparrows had gathered into flocks and frequently were feeding upon the seeds of weeds on both sides of the road. At the approach of a car the birds upon one side would fly away and the members of the flock upon the opposite side of the road would attempt to join their companions. As a result my car frequently hit a number of birds of a single flock, and many times I saw where some other car had killed a dozen or more individuals at once.

I believe there are few motorists who have driven cars in excess of twenty years who will deny that the domestic fowl is now more adroit at escaping the hazards of traffic than formerly. In spite of the higher speeds attained and the excessive multiplication of cars, one sees probably fewer dead chickens upon the roads now than in 1913. That all the more incautious fowls and their progeny have been eliminated in the interim appears highly improbable, and yet that extreme vacillation preceding a wrong decision and fatal dash, so characteristic of the hen of the earlier part of the century, and so harassing to the contemporary motorist, is now but rarely encountered. I believe the average native bird to be fully the intellectual match of any domestic fowl, and that what the former has done the latter can do. I, for one, am of the opinion that our avifauna can meet, and is gradually meeting, the traffic problem.—A. BRAZIER HOWELL, *Department of Anatomy, Johns Hopkins Medical School, Baltimore, Maryland, September 22, 1933.*

Unusual Behavior of the Western Robin.—Several hours were spent by me at Mirror Lake, Yosemite, on September 15 and 16, 1933. I was there to study tracks and to learn who or what might be feeding on the stranded fish. On the second day

I saw the long isolated arm of the lake go dry, and I saw thousands of trout fry perish. Also I saw large fish, over a foot long, go into spasms and after ten or fifteen minutes of intermittently wild convulsions turn belly-up and slowly sink to the bottom of the pool. And while all this was going on, the Western Robins (*Turdus migratorius propinquus*) were having fat pickings.

Scattered along the margin of the brown pool, feeding on the mud flats like a company of sandpipers, were at times as many as nineteen robins. Occasionally a spotted robin would plunge in belly-deep to capture a fish. The old birds were content to stand on the shore and to pluck their fish when they came into shallow water. The fish taken by the robins were about two inches long. These fish they would toss out on the beach, mangle with their bill, beat on the ground, and otherwise soften before attempting to swallow. One robin was seen to capture and to consume four fish. All the robins were actively fishing, but I could not keep count on more than one at a time. All day long robins were coming and going, probably the same birds, perhaps twenty in all.—CHARLES W. MICHAEL, *Yosemite, California, September 17, 1933.*

Flicker Hybrids.—The immediate suggestion for this discussion of hybridization in the genus *Colaptes* arises out of a full family of hybrid flickers collected under the direction of Mr. H. F. Hughes at Shaunavon, Saskatchewan, June 15, 1933, and presented to the National Museum of Canada. The family consists of the two parents and four juvenal offspring just as they left the nest. Neither parent is of pure blood, though the male is strongly *Colaptes auratus* while the female is about equally as strongly *Colaptes cafer*. The following table gives the estimated strength in percentages of each distinctive specific character in each individual.

| Character | Parents | | Young | | | |
|--|---------|-----|-------|-----|-----|-----|
| | ♂ | ♀ | ♂ | ♀ | ♀ | ♀ |
| <i>auratus</i> Throat fawn color | 50 | 50 | 20 | 40 | 50 | 60 |
| Malar stripe black | 90 | — | 100 | — | — | — |
| Nuchal bar present | 100 | 0 | 100 | 70 | 75 | 100 |
| Wing and tail yellow | 100 | 0 | 100 | 100 | 100 | 0 |
| Total percentage <i>auratus</i> characters | 88 | 12½ | 84 | 77½ | 80 | 17½ |
| <i>cafer</i> Throat gray | 50 | 50 | 80 | 60 | 50 | 40 |
| Malar stripe red | 10 | — | 0 | — | — | — |
| Nuchal bar absent | 0 | 100 | 0 | 30 | 25 | 90 |
| Wing and tail red | 0 | 100 | 0 | 0 | 0 | 100 |
| Total percentage <i>cafer</i> characters | 12 | 87½ | 16 | 22½ | 20 | 82½ |

In comparing these birds with a collection of 156 specimens of the two flickers and their hybrids in the collections of the National Museum of Canada there is comparatively little to add to the very complete study of the subject made by J. A. Allen (Bull. Am. Mus. Nat. Hist., 4, 1892, pp. 21-44), but the geographical extent of hybridization as it occurs in Canada can be indicated in greater detail than is shown on his map. The maximum of hybridization in Canada occurs along the international boundary from southwestern Saskatchewan north to Medicine Hat and up the eastern foothills of the Rocky Mountains at least to Jasper Park and the Yellowhead Pass of the Canadian National Railway. Throughout this range in a narrow line all the flickers seem more or less completely mongrelized and specimens of approximately pure blood of either species are the exception. East and north and in Manitoba, *auratus* rapidly predominates, though individuals showing more or less *cafer* influence occur occasionally at Winnipeg and casually as far east even as Toronto. Good series from Whitewater, Oak and Shoal lakes, Manitoba, Last Mountain Lake, Saskatchewan, and Lac la Nonne, northwest of Edmonton, Alberta, seem to be practically pure *auratus*.

In British Columbia the Red-shafted is the dominant flicker throughout the southern parts and on the coast up the Alaska panhandle. Northward and eastward it is gradually replaced by the Yellow-shafted. However, the latter occurs more or less regularly throughout British Columbia, and wherever it occurs it hybridizes freely with the other. In fact it is doubtful if any of the flickers of this province are strictly pure of either species. Many specimens that appear so undoubtedly have some specific mixture in their ancestry ready to break out in succeeding generations. The *auratus* influence is weaker on the coast than in the interior and still more attenuated on the coastal islands; but *auratus* has been reported from Vancouver

Island and in confirmation we have several typical specimens of the saturated form, *C. cafer cafer*, from that island, with faint traces of red nuchal bars. One specimen from Graham Island even shows a fawn overwash to the gray throat that is indicative of a taint of *auratus* blood. Northward, birds from Jasper Park and the Yellowhead Pass are strongly hybrid, averaging about fifty-fifty in relation to the two species. Those from Hazelton are *auratus* but with appreciable *cafer* influence. Mr. M. Y. Williams saw flickers sixty miles below Carcross and at Carmacks, Yukon Territory, that he referred to *cafer*; but other observers in the region have noted only *auratus* which seems to be the prevailing form there. J. A. Allen on the map accompanying his monograph of the hybrid flickers plots a hybrid at Sitka, Alaska, and specimens in the Canadian national collections from the Chitina Glacier near the south end of the Alaska-Yukon boundary, while strongly *auratus* have a perceptible tinge of gray in the fawn throat indicating some *cafer* influence.

The problem in so freely hybridizing species is, what prevents the ultimate complete mongrelization of both species? It is a matter of mathematics to show that, in the course of time, unless there is some handicap to the persistence of cross-bred strains, the hybridizing process should gradually extend east and west, north and south, until finally there would be no pure blood of either species left. That it has extended in some degree throughout the northern range of *cafer* is evident. That it has not seriously encroached on the territory of *auratus* is surprising and suggests that *auratus* is the dominant aggressive species, invading *cafer* territory rather than the contrary. Of course our records are not complete enough through time or in detail for us to say definitely that complete specific hybridization is not in progress. Allen cites evidence to show that when he wrote in 1892 hybrids were regarded as recent occurrences in California, but such later evidence as is on file is negative as to its current increase anywhere in the disputed territory. As far as can be demonstrated on present evidence the relations of the two species to each other are quite stationary.

The subject of the non-survival of hybrids is not confined to the flickers but enters into the cases of other species that cross frequently or occasionally. It is well known that many hybrids are completely sterile, others are partially so. On casual observation the two flickers seem to be fully fertile with each other, but it may well be that there is sufficient handicap in this direction to prevent indefinite continuance of the hybrid strain in competition with either parent stock. The flickers offer unparalleled opportunities for studying these phases of hybridity, and to those favorably situated they present possibilities for interesting research.—P. A. TAVERNER, National Museum, Ottawa, Canada, September 10, 1933.

Records of the Nesting of Certain Birds in Eastern California.—*Querquedula discors*. Blue-winged Teal. On July 2, 1933, in Long Valley, Mono County, California, a nest of this bird was found containing ten badly incubated eggs. The female flushed from the nest and accompanied by the male flew about in the vicinity of the nest which was located in a hummock of sage and marsh grass where a creek had been overflowing; at this date the water had receded, leaving the nest location out of the wet area.

Astur atricapillus striatulus. Western Goshawk. On June 26, 1930, a pair of these birds was found nesting in a dense grove of pines at 8500 feet elevation at June Lake. On this date the nest held three young birds sprouting pin feathers and estimated to be six weeks old. This same nest was visited again on June 6, 1931, at which time it held two young just hatched and one infertile egg. On May 8, 1932, a set of three eggs was collected from this nest, in which the incubation was advanced about one week. At all times the parent birds were vicious and it was not safe for anyone to inspect the nest while alone; such attempts resulted in clawed faces, arms and legs. But the birds were afraid of a group of people and more alarmed at a dog which accompanied us on these trips.

At all times a careful watch was kept for signs of food supplied the young, and our observations indicated that the food consisted entirely of marmots and chipmunks. The female would leave the nest and return within a few minutes with a chipmunk or marmot and proceed to shred the meat and feed it in small bits to the young. No feathers were noted in or around the nest at any time, although grouse

were quite plentiful near-by. The nest was placed about thirty feet above the ground and against the north side of the trunk of the tree; it was made of dead conifer twigs both inside and out, no lining except smaller dead twigs being used.

Cryptoglaux acadica acadica. Saw-whet Owl. On June 6, 1930, a nest of this bird was located at June Lake, Mono County, at about 8000 feet altitude. The nest was situated in a large dead fir stub in a deserted woodpecker hole and contained at this date one infertile egg and one young bird just ready to fly, apparently the last young bird to leave the nest.

Phalaenoptilus nuttallii nuttallii. Nuttall Poor-will. On June 6, 1933, near June Lake, a nest of this bird was found containing two fresh eggs. The site was on a steep, well wooded western slope at about 7000 feet elevation, and the nest was located at the base of a mountain mahogany which gave it some protection from the snow which at this date covered the ground about two inches deep. No attempt had been made at nest building, the eggs lying upon the pumice pebbles which covered the ground.

Hylocichla guttata sequoiensis. Sierra Hermit Thrush. On June 7, 1931, at June Lake, a nest of this bird was located thirty feet from the ground in a large pine tree and within one hundred yards of the occupied nest of the Western Goshawk. The nest held four slightly incubated eggs on this date.

Molothrus ater artemisiae. Nevada Cowbird. On June 28, 1933, an egg of this bird was found in a nest of the Pileolated Warbler (*Wilsonia pusilla* subsp.). The nest was found on Reverse Creek, Mono County, and was placed upon the ground at the base of a small wild rose bush and under a dense grove of aspens.

Hesperiphona vespertina brooksi. Western Evening Grosbeak. On June 23, 1932, three pairs of these birds were seen at one time picking up nesting material by the side of a well traveled public road at about 7000 feet altitude in Inyo County. The females were doing all the work and the males busied themselves fighting each other and assisting the females in finding the proper material. The males never carried any material, although they always followed the females to and from the nests. Two of the nests were located: one 110 feet up in the top of a large white fir; the other about 40 feet up in a white fir. On July 2, 1932, the nest held three and four eggs in which incubation was well begun. The females were sitting closely. The nests were located in a dry, heavily wooded valley. Since Western Tanagers were very common and nesting in the same grove and because of the resemblance between the nests, grosbeak nests were difficult to identify as such. Apparently there was an abundance of the proper food at this time and place for both of these birds, sufficient to cause them to nest there, for we have never seen either species at this place before or since.

Melospiza melodia saltonis. Desert Song Sparrow. Two nests of this bird were noted on May 12, 1932, on the west bank of the Colorado River about five miles upstream from Laguna Dam, Imperial County, on the California side of the river. One nest held four badly incubated eggs and the other contained three fresh eggs.

Among other birds found nesting within a twenty mile radius of June Lake, Mono County, were Canada Geese (*Branta canadensis canadensis*), five pairs of which with young well grown were seen on June 15, 1933. A resident informed us that the geese had eggs in their nests on March 26, 1933, when the snow was yet on the ground. A nest of the Short-eared Owl (*Asio flammeus flammeus*) with six fresh eggs was collected on June 15, 1933; and a family of Marsh Hawks (*Circus hudsonius*) with four young well feathered was found, in addition to two sets of four eggs of the American Bittern (*Botaurus lentiginosus*). These seemed to be rather unusual finds for such a high altitude.—JAMES B. DIXON, *Escondido, California, September 28, 1933.*

Banded Laughing Gull Recovered in El Salvador.—The Laughing Gull (*Larus atricilla*) appears to be a rare bird anywhere on the west coast of Central America, although several investigators have recorded its presence on both coasts of northern South America. According to both the 1910 and 1931 editions of the A. O. U. Check-List, it winters south to Chile, but Hellmayr (Field Mus. Nat. Hist., Zool. Ser., 19, 1932, p. 410) in a footnote states that "*Larus atricilla* (Linnaeus), sometimes credited to Chile, has never been found there." The southern limits of its Pacific coast range are accordingly probably Peru—certainly Ecuador (see Chapman, Bull. Am. Mus.

Nat. Hist., 55, 1926, p. 188) where Murphy found it "common along the coast and up the Guayas from January to March, 1925." To the north on the Pacific coast, Grinnell (Univ. Calif. Publ. Zool, 32, 1928, p. 61) lists one "taken by Frazer at San Jose del Cabo, September 6, 1887," and "... another seen at the same place November 9 following." Recently the species has been found breeding on Salton Sea, California (Miller and van Rossem, Condor, 31, 1929, pp. 141-142).

It accordingly seems desirable to record a specimen (no. A518811) banded as a chick at Muskeget Island, Massachusetts, on July 13, 1930, by Miss Grace C. Meleney, which was found dead at Acajutla, El Salvador, on January 26, 1931.

This record has been included in the mimeographed monthly bulletin "Items of Interest" of the former Massachusetts Division of Ornithology, Department of Agriculture, but the record seems of sufficient importance to warrant formal publication.
—FREDERICK C. LINCOLN, *Biological Survey, Washington, D. C., October 15, 1933.*

An Occurrence of the Northern Black Swift off the Guatemalan Coast.—On the evening of September 20, 1933, a black swift came on board the SS. Antigua, latitude 12° 52' N., longitude 91° 50' W., approximately eighty-four miles off the Guatemalan coast. The bird, which was uninjured, was secured by the vessel's master, Capt. W. A. Card, and by him presented to the California Academy of Sciences. It is now C. A. S. no. 38402. Upon examination the bird proved to be an example of the Northern Black Swift (*Nephoecetes niger borealis*). It was a female, and yielded the following measurements: wing, 160.0 mm.; tail, 50.5; culmen, 6.5; tarsus, 13.5; middle toe, 10.5. Since there is no authentic record of the occurrence of this bird south of southern Mexico (see Griscom, Bull. Am. Mus. Nat. Hist., 64, 1932, p. 195) this take is of decided interest.

From the same donor the California Academy of Sciences has also received specimens of the Socorro Petrel (*Oceanodroma socorroensis*), taken on May 12, 1933, latitude 9° 10' N., longitude 86° 04' W., and an example of the Galapagos Petrel (*Oceanodroma tethys*), on September 22, 1933, latitude 16° 45' N., longitude 100° 28' W. Although these occurrences do not extend the known range of either species, yet specimens from these positions are sufficiently rare to warrant note being made of their existence.—M. E. McLELLAN DAVIDSON, *California Academy of Sciences, San Francisco, California, September 30, 1933.*

Yellow-billed Magpies in Captivity.—My first acquaintance with a magpie was in August, 1930, in one of Mrs. Florence Eichwaldt's aviaries. Immediately I inquired where I could get one, but no one knew where. With this, I gave up thought of getting one, but "Maggie" as she is called, was always a source of interest to me. On every visit I made, I tried to get her to talk to me, and she sometimes would reward me with, "Hello Maggie."

On March 28, 1932, I had the very good fortune to find a colony of nesting Yellow-billed Magpies (*Pica nuttallii*), and my first thought was to raise some young birds. In the middle of May I took two of them, giving one to Mrs. Eichwaldt. After a great deal of work and worry we could boast of two fine birds. Since her other bird was named "Maggie," Mrs. Eichwaldt named her new one "Jiggs," while mine was called "Blackie."

My bird was later dubbed the "Ornery Black-bird" when her mischievous disposition began to show itself. We did not have a really safe aviary outdoors for her, so we kept her indoors for some time. This made her tame and she became a fine pet. Her career in the house was unequalled for mischief. She would hide anything she could lift, such as needles, nails, pins, buttons, money, trinkets and food of all kinds.

When the groceries came home she seemed to know the package of meat and promptly pecked a hole in it. She would eat till satisfied, and grab as big a mouthful as possible, hide it, and then come back for more. Cookies and biscuit dough topped the list of her favorite foods. When baking was started she had to be put out on the back porch, for if she was left in the kitchen there would be dough all over the house. Every time someone happened to go near one of her hiding places she was there to retrieve the article if it was uncovered and try to hide it in another place.

When a cat or dog would come into the house she would fly down, give it a vicious peck and dash away to safety. She would repeat this until the animal left or she was put out.

Of the three birds, Maggie and Jiggs are the only ones that talk. Maggie has quite a record vocabulary. She imitates all the parrots and the neighbors, and once in a while she sings. There are many amusing sayings accredited to her.

In April of this year we put all of the birds together to see if they would breed. They did not breed, but we had the good fortune of seeing them build a nest. Maggie and Jiggs were the ones that worked on it. The nest was made in an old nail keg. First a layer of sticks was put in the bottom. When we thought they had finished with this part we gave them a pan of mud. They went to work immediately, using their bills as trowels to work the mud. Then they swallowed as much mud as their bills would hold, waited for a few minutes and then went to the nest and disgorged it in the shape of a ring. Then they worked the mud into a cup shape with their bodies. After a thin layer of mud was laid they got some fine twigs and straws, and after working them in the mud they would put a layer of this in the nest, then another of mud. After two days of this they were such a sight, black couldn't be told from white. The birds then ceased work for a day and cleaned up. The following day they began again and lined the nest with a large amount of horsehair.

The most peculiar thing about it all is that as soon as the nest was completed they began to fight fiercely for possession of it. Because of this we have come to the conclusion that all of the birds are females.—GLEN VARGAS, Route 3, Jensen Road, Hayward, California, July 27, 1933.

Nesting of the Western Robin in Solano County, California.—The Western Robin (*Turdus migratorius propinquus*) has nested for several years in suitable parts of Napa County, which adjoins Solano County on the west, and I have been expecting to find this species nesting in the latter county for some time. Heretofore, the only evidences I have had of robins nesting in Solano County are: an adult on the lawn of the Vacaville High School in the early summer, date not recorded (about 1929); a pair of birds on the lawn of the Benicia City Park, several times in June, 1932; a young bird with spotted breast in my front yard at Benicia on July 31, 1932; an adult robin filling its beak with earthworms on my lawn many times in May and June, 1933; and an adult male on the lawn surrounding the Benicia Arsenal office building, on June 1, 1933.

My first actual sight of a nest, however, in this county was on June 15, 1933, when a typical mud structure of the robin was found by two boys and taken to the home of one of them where it was shown to me. One of the lads took me to the site where the nest was found—a crotch of a eucalyptus tree in our city park. The nest had been placed ten feet up and was well hidden by the bushy growth where the tree had been "topped." The young had left the nest when found.

The increase in the area devoted to green lawns has, I think, been the deciding factor in inducing some of the robins to stay here to nest.—EMERSON A. STONER, Benicia, Solano County, California, July 19, 1933.

Problems in the Classification of Northwestern Horned Owls.—Dr. L. B. Bishop has recently described a form of Great Horned Owl, *Bubo virginianus leucomelas*, based upon winter-taken specimens from the vicinity of Victoria, British Columbia (see Proc. Biol. Soc. Wash., 44, June 29, 1931, p. 93). Having occasion to refer to this account, it struck me as desirable to make comparisons with other specimens that were available, and in response to my request Dr. Bishop kindly forwarded the type of *leucomelas* and one other skin of the same sort. Comparison with my own material sufficed to show that the new name applied to the breeding Horned Owl of the Atlin region, British Columbia. It should be a source of satisfaction to Dr. Bishop that his published description contains the following statement: "These facts would indicate that *leucomelas* is a form of very limited distribution, and probably breeds east of the coast range in northern British Columbia, near where the ranges of *lagophonus* and *subarcticus* approximate."

This is all right so far as it goes, but I feel very strongly that we are still a long way from a proper understanding of the Horned Owl variants of the northwest,

and I do not believe that the continued application of new names to observed modes of coloration is the proper solution of the problem. There are a number of varietal names in the literature of this species that are still undigested; unconsidered application of the conventional subspecies concept may lead us still farther astray.

Breeding Horned Owls that Major Allan Brooks and myself collected about Atlin in 1924 were reported upon by me under the name *Bubo virginianus subarcticus*, with comment upon their appearance (Univ. Calif. Publ. Zool., 30, 1926, pp. 113-114). This identification called forth emphatic criticism from Brooks (Condor, 29, 1927, p. 114), but without presentation of any alternative; under the circumstances I did not feel justified in applying to these birds any name other than that of the form they most nearly resembled. They are not quite as dark as Dr. Bishop's specimens, a difference that may be due to the greater wear and fading that the summer birds had undergone. Then, of two partly feathered young owls from the same nest, one is of the black-and-white *leucomelas* mode, the other an excellent example of the pale colored and more rufescent *subarcticus*. During the summer I collected also two adults of the brown *lagophonus* mode of color, one of these certainly, the other possibly, a non-breeding bird. So, here is required a satisfactory explanation of the simultaneous occurrence of three "good" subspecies.

During the summer of 1929 Horned Owls were almost entirely absent about Atlin. In the summer of 1931 they were scarce, but an influx of birds, presumably from the north, set in early in September, and some were seen every evening. I shot three, all very dark colored, one almost black above, the extreme of the *leucomelas* mode.

My experience in the northwest enables me to a certain extent to outline conditions among the Horned Owls in the regions I have visited, and the situation as I see it is as follows. On the Alaskan coast (mainland and some islands) of the Sitkan district, and probably much farther south, there is a very dark colored, brownish bird, to which the name *saturatus* has been applied. This form does not extend into the interior of northern British Columbia east of the Coast Range. In the upper Skeena Valley, the Hazelton region, during the summer of 1921, W. D. Strong and myself collected twenty specimens of the breeding form of Horned Owl, which birds are distinctly brown colored, though not as dark as the coastal *saturatus*. I applied the name *lagophonus* to this series, but with mental reservations. This whole region, some two hundred miles inland, displays in a most interesting way coastal influences upon fauna and flora; the broad valley of the Skeena is an open gateway to the coast such as does not exist anywhere in the country to the northward. Various bird species characteristic of the humid coast extend inland commonly here as far as Hazelton; it is a question in my mind whether these superficially *lagophonus*-like Horned Owls may not represent an inland extension, slightly modified, of the coastal *saturatus*. In the next valley to the north, the Stikine, I spent a summer in what was an off-year for Horned Owls, and saw none. I would expect the birds of that valley to be the same as at Atlin.

The breeding Horned Owls of the Atlin region are, as we have seen (and most surprisingly, it seems to me), predominantly dark colored, but with hardly a trace of the dark browns so characteristic of coastal *saturatus*. They are black and white. Then, a little farther to the north in the Yukon drainage, apparently rather abruptly, there is a very pale colored form, white and with light rufescent markings, which I have regarded as probably representative of *subarcticus*. I have seen birds of this sort from Forty-mile (June), Rampart (nestlings), Russian Mission (December), and Yakutat (May). I shot a migrant near Hazelton, British Columbia, in September.

Obviously the facts above listed do not accord with the treatment of the Horned Owls by Ridgway (Birds N. and Mid. Am., 6, 1914, pp. 736-754), or with that in the A. O. U. Check-List (1931, pp. 164-166). I feel reasonably well satisfied with the coherence of my own observations, but I am not at all sure of the proper application of subspecific names to the variants, local and otherwise, that I have described; nor do I think that at this time anyone else can be. And as to the allocation of specimens collected on migration or in winter, I am sure that, in the present state of our knowledge, there are many occasions when the appearance of the bird may give rise to utterly false conclusions. It is a subject that calls for detailed studies of conditions and specimens at many different localities, by observers who will not

feel themselves bound to make their findings accord with the statements they see already in the literature. The definite application of a subspecific name carries an implication of finality that is often a bar to further enquiry. And in the case of these Horned Owls it is understanding that we need rather than names.

The unexpected occurrence of a distinctly black Horned Owl in this region brings forcefully to my mind the problem presented in another species, that is, the true status of the Black Merlin (*Falco columbarius suckleyi*). I know of no proof that that name represents a valid geographic race, confined within boundaries to the exclusion of other forms of *columbarius*. Most assuredly it is not of the humid coastal strip, as has been supposed. I have collected specimens of "*suckleyi*" at Hazelton and at Atlin, south-bound migrants all; it must breed somewhere in this general region, where, however, typical *columbarius* also occurs. The Black Merlin may, I think, serve as an example of a case where the definite application of a subspecific name has acted as an obstacle to a true understanding of conditions.

There is still a third raptorial bird of the region that comes to mind in this connection, *Buteo borealis harlani*. This, too, is a local form that has attained dark coloration, again one that is black with none of the rich brown seen in the dark colored coastal races. I will doubtless be accused of inconsistency in according subspecific recognition to the *Buteo* and not to the others, but there is far more information now available concerning this bird. Also, as I have said, the name applied is of relative unimportance compared to an understanding of conditions.—H. S. SWARTH, *California Academy of Sciences, San Francisco, June 26, 1933.*

Additional Notes from Santa Catalina Island.—During the past two years I have accumulated the following notes which add to the knowledge of the Catalina avifauna.

Casmerodius alba. Egret. During the month of May, 1930, a bird of this species appeared at the bird park in Avalon and remained for about three weeks. Several unsuccessful attempts were made to capture it by E. H. Lewis, superintendent of the park. This is an addition to the Channel Island list.

Branta nigricans. Black Brant. Captain Hugh Mackay of Avalon saw one of these birds on the water of Avalon Bay, February 7, 1930. This is apparently the first record from any of the Channel Islands.

Charadrius nivosus. Snowy Plover. Fairly common on the beach at Howland's Landing, May 3, 1933.

Columba fasciata. Band-tailed Pigeon. Twelve birds were feeding in the scrub oak trees near the summit of Orizaba Peak (elevation 2000 feet), January 10, 1932. Twenty more were seen in the same locality, January 16, 1932.

Colaptes cafer collaris. Red-shafted Flicker. Five eggs were found in a nest excavated in the rotten trunk of an elderberry tree, three feet from the ground, on the golf course at Avalon, May 15, 1933.

Progne subis. Purple Martin. Two birds seen on the wing around the streets of Avalon during the entire afternoon of May 10, 1933.

Icterus naevius meruloides. Northern Varied Thrush. A dead male bird was found on the grounds of the Avalon High School, December 28, 1931.

Agelaius phoeniceus neutralis. San Diego Red-wing. Several competent observers have told me that red-wings have been seen on Catalina many times during the past twenty years.

Carpodacus purpureus californicus. California Purple Finch. A male bird was under close observation for a half hour, at Avalon on January 26, 1933.

On March 22, 1930, I saw five Song Sparrows (*Melospiza melodia*), subspecific status undetermined, in some brush near the summit house, about three miles north of Avalon. During five years of residence on Catalina Island these are the only Song Sparrows I have seen; they were probably migrants from the mainland rather than any of the subspecies reported from the other islands.—DON MEADOWS, *Avalon, California, September 3, 1933.*

Fossil Bird Remains from the Pliocene and Pleistocene of Texas.—From a large collection of fossil vertebrates secured in Hemphill County, Texas, by the Bureau of Economic Geology of Texas and the University of California Museum of Paleon-

tology, three fragmentary bird fossils have been turned over to me for identification. Two of these came from Terrace No. 2 of the beds which Reed and Longnecker (Univ. Texas Bull., 3231, 1932, p. 32) call "Lower (?) Pleistocene." The third was found in the Hemphill Beds of the Lower Pliocene. The two determinable specimens are the Coot (*Fulica americana*) and the Green-winged Teal (*Nettion carolinense*).

Fulica americana. Distal end of left humerus (fig. 7, a), Univ. Calif. Mus. Paleo. no. 30436, loc. V2826 (loc. 28 of Reed and Longnecker, *op. cit.*, pp. 41, 68), Pleistocene of Hemphill County, Texas, collected by Reed and Longnecker, 1928. This



Fig. 7. a, Distal end of left humerus of *Fulica americana*, U. C. Mus. Paleo. no. 30436. b, Proximal half of left ulna of *Nettion carolinense*, U. C. Mus. Paleo. no. 30560. $\times 2$.

specimen was reported as being the humerus of *Nettion* (*op. cit.*, p. 68), but examination proves it to have been misidentified. In *Nettion* the external condyle is skewed only at its proximal end, the internal condyle is long and narrow and is tilted diagonally across the bone, and the impression for the brachialis anticus is small; while in the fossil specimen the external condyle is oblique, the internal condyle is bulbous and lies at right angles with the longitudinal axis of the bone, and the impression for the brachialis anticus is wide and long. It is unusually small but agrees in size and characters with the smallest specimen I have examined of *Fulica americana* (Univ. Calif. Mus. Vert. Zool. no. 46140, ♀). The palmar surface is well preserved whereas the ectepicondyle is broken on the anconal surface.

In connection with this small specimen it is interesting to consider Shufeldt's *Fulica minor* from the Pleistocene of Fossil Lake, Lake County, Oregon. He states (Amer. Nat., 25, 1891, p. 820, and Acad. Nat. Sci. Phila., ser. 2, 9, 1892, p. 412) that the type of *F. minor*, a left humerus, is 62 mm. in length. He compared it with a humerus of *F. americana* 70 mm. in length and said that except for the difference in size the two were alike. In a series of

15 specimens of *F. americana* I find this bone to vary from 79.5 to 65.0 mm. in length. The question naturally comes to mind whether a larger series of the modern coot would not include specimens as small as 62 mm.

Nettion carolinense. Proximal half of left ulna (fig. 7, b), Univ. Calif. Mus. Paleo. no. 30560, loc. V2823 (loc. 20 of Reed and Longnecker, *op. cit.*, p. 66), Coffee Ranch, Lower Pliocene of Hemphill County, Texas, collected by Univ. Calif. Mus. Paleo., 1932. This bone is identical with those of modern skeletons, except that the prominence for the anterior articular ligament is slightly longer and narrower, and the external cotyla is slightly more rounded on its external margin. Both are differences of minor significance. This form has been reported frequently from the Pleistocene, but this record is the first of occurrence in the Pliocene; also this is the second modern North American species to be reported from this epoch. The specimen is of distinct importance since it establishes the existence in the Pliocene of a duck identical in osteological characters of the ulna with the present day Green-winged Teal, and demonstrates the great antiquity of this bird. The bone is cream colored and is calcified, as are the other vertebrate remains taken from this quarry.

Indeterminate: Proximal half of left ulna, Univ. Calif. Mus. Paleo. no. 30439, loc. V2826, Pleistocene of Hemphill County, Texas, collected by Reed and Longnecker, 1928. I cannot identify with certainty this fragment of a passerine. However, it apparently belongs to the family Fringillidae and it compares closely in size and detail with the Field Sparrow, *Spizella pusilla*.

Skeletons of modern forms were loaned through the courtesy of the authorities in charge at the United States National Museum, the University of California Museum of Vertebrate Zoology, and the University of Kansas Museum of Birds and Mammals. The drawings were made by Mr. Owen Poe.—LAWRENCE V. COMPTON, Museum of Paleontology, University of California, Berkeley, California, October 1, 1933.

The Black-throated Green Warbler in Arizona.—The first published record of the occurrence of the Black-throated Green Warbler (*Dendroica virens*) in Arizona is that by A. K. Fisher (Condor, 6, 1904, p. 81) mentioning a bird collected on May 9, 1895, by R. D. Lusk in Ramsay Canyon, Huachuca Mountains, Cochise County. This record probably was the basis for the listing of this warbler as accidental in Arizona in the third and fourth editions of the A. O. U. Check-list of North American Birds. In his distributional list of Arizona birds, H. S. Swarth (Pacific Coast Avifauna No. 10, 1914, p. 70) gives Fisher's record as the only one for the state. Recently L. L. Walsh (Auk, 50, 1933, p. 124) records seeing a male of this species in the Huachuca Mountains, but does not give the date, although, judging from the rest of his account, it was probably in August, 1932.

On May 30, 1933, I collected an adult male *Dendroica virens virens* on the brink of the gorge of the Colorado River a short distance east of Vulcan's Throne in Toroweap Valley, Mohave County. The bird had come up to investigate the commotion caused among a small group of Western Gnatcatchers by my attempts to attract them within collecting range. The specimen is now no. 63250 in the collection of the Museum of Vertebrate Zoology.—SETH B. BENSON, Museum of Vertebrate Zoology, Berkeley, California, September 23, 1933.

An Aged Band-tailed Pigeon.—Several years ago, there was given to me a male Band-tailed Pigeon (*Columba fasciata*) that Joseph Wales had received in 1925, and which some time previous to this had belonged to a hunter. Except for a crippled wing the bird remained in excellent health and appearance until 1932 when it became sluggish, unkempt, and in time disheveled. Due to its loss of interest in life and its untidy appearance it was chloroformed late in 1932. This male Band-tail would seem to be, to quote Mr. Wales, "at least eight years old and probably nearer ten."—ROLAND CASE ROSS, City Schools, Los Angeles, California, September 15, 1933.

The Ruff on St. Lawrence Island.—Among a small lot of birds recently received by the United States National Museum from Paul Silook, an Eskimo collector on St. Lawrence Island, is a specimen of the Ruff (*Philomachus pugnax*), the first to be recorded from that island. The species has been found as a stray along the eastern seaboard of North America a number of times, but less frequently on the Pacific coast. It has been recorded there, however, from the Pribilofs and Bering Island. The latter locality is outside the limits of North America; the Pribilof record is a single immature female taken on St. Paul Island, September 7, 1910. The present specimen, also a female, was shot at Gambell, in the northwestern part of St. Lawrence Island in June, 1933.—HERBERT FRIEDMANN, United States National Museum, Washington, D. C., October 19, 1933.

Tri-colored Red-wing Nesting in Eastern Shasta County, California.—Incomplete perusal of the literature covering this species seems to indicate the lack of any breeding records for California north of the Sacramento Valley and east of the main Sierra Nevada summit, except the Lake Tahoe record (Barlow, Condor, 3, 1901, p. 168). Breeding of the species in Oregon has recently been established (Neff, Condor, 35, 1933, pp. 234-235).

A survey made by Dr. Walter P. Taylor and the writer near Anderson, Shasta County, and covered in manuscript reports, located four nesting colonies on May 16 and 18, 1932; a subsequent visit by the writer on June 16, 1932, resulted in locating another colony near Redding. On May 17, 1932, Dr. Taylor and I noted a group of some twenty-five Tri-colored Red-wings (*Agelaius tricolor*) playing about a field two miles south of Glenburn. A diligent search of the neighborhood failed to disclose the nesting site.

On May 22, 1933, with Carl Olsen of the State Department of Agriculture, the writer searched the entire Fall River drainage as far as possible by boat. One mile south of Glenburn we located a band of about one hundred *Agelaius tricolor*; nests were placed in a tangle of *Rubus*, *Prunus*, and *Rosa*, overhanging the high bank of the river. It was impossible to penetrate the thicket, but the three nests reached held sets of either two or three eggs. We estimated that there were about sixty or

seventy nests, some of them of last year's construction, and it was apparent that this was the site for which we had searched in 1932; incidentally, it was within fifty yards of the end of our search of that season.

On May 23, 1933, I saw a band of fully five hundred birds fly across the property of the Shasta Fur Farm about four miles from McArthur; on the same date three males were seen perched on a wire fence along the McArthur-Glenburn road, about one-half mile from McArthur.—JOHNSON A. NEFF, *Bureau of Biological Survey, Sacramento, California, August 1, 1933.*

NOTES AND NEWS

The Ninth Annual Meeting of the Cooper Ornithological Club is planned for March 30 and 31, 1934, at San Diego. The sessions will be held under the auspices of the San Diego Society of Natural History. The committee appointed by the president of the Board of Governors to conduct the meeting is: Ways and means, W. Lee Chambers; publicity, Harry Harris; program, Loye Miller; meeting arrangements, Clinton G. Abbott, Frank F. Gander, Laurence M. Huey, A. M. Ingersoll, and J. W. Sefton, Jr. The dates have been set to coincide with the Easter holidays, thus stimulating many people to make the trip to San Diego at a time when that part of the State is rich in ornithological interest. The Thirteenth Annual Meeting of the Board of Governors will be held in connection with this meeting of the Club.—A. H. M.

The essential importance of an adequate annual index to any magazine is realized by every student. To the end of providing such for the *Condor*, we are dependent upon skilled service gratuitously rendered. The editors hereby acknowledge assistance of this kind from our fellow Club member, Miss Selma Werner, furnished for several years passed. Specifically, she prepared the Index to Volume XXXV, in our November issue.

Large attendance alone was sufficient to make the 1933 meeting of the American Ornithologists' Union a notable one. But there were other impressive features. Among the ones which those who attended will long remember were the many papers—so many that the resulting double sessions prevented any one person from hearing more than half the whole program; the marked interest shown in the more serious phases of avian biology; the exhibit of bird art; opportunities to visit the zoos and museums and to make field excursions in and about New York City;

the annual dinner where it was announced that Doctor Frank M. Chapman had been awarded the Brewster Medal for the most outstanding ornithological publication (his revised Handbook) in the preceding six years; and distribution of the volume "Fifty Years' Progress of American Ornithology 1883-1933". Visitors were unanimous in expressing their appreciation of the preparations made and so carefully carried out for their welcome and entertainment by the New York members of the Union.—J.M.L.

Pacific Coast Avifauna number 21, issued December 1, 1933, by the Cooper Ornithological Club, is a 204-page book entitled "A Revised List of the Birds of Southwestern California". In this substantial contribution the author, Mr. George Willett of the Los Angeles Museum, brings down to date, upon the basis of greatly increased knowledge, the field of his "Birds of the Pacific Slope of Southern California", published more than twenty years ago as Pacific Coast Avifauna number 7. The same territory is covered; and a huge amount of data, unpublished as well as on printed record, has been critically assorted and, in condensed form, incorporated into the new summary. A total of 446 kinds of birds is entered in regular status, and for each is given, insofar as known, its historical, distributional, seasonal, and breeding status. Nomenclaturally, the author has been notably conservative, which is proper in a working bird-list such as is likely to remain a standard guide for students in its territory for many years to come. The numerous taxonomic comments will stimulate reexamination of subspecific status, to the end that revisions and improvements in classification will surely come. This number in the Avifauna series is practically altogether an accomplishment of the Southern Division of the Club. In a way, it constitutes a historical rec-



Cleveland Bent

Fig. 8. Author of the Life Histories, nine volumes to date, most comprehensive work yet undertaken covering the natural history of North American birds. Mr. Bent has been a member of the Cooper Ornithological Club for 25 years, is now an Honorary Member of the Club. He is Vice-President of the American Ornithologists' Union.

ord of ornithological activity in the Los Angeles region from the very beginning of the Club's existence. This résumé is exceedingly creditable to all of the very many persons concerned, and especially so to George Willett by reason of the painstaking industry and searching analysis he has expended upon it. Copies may be obtained from W. Lee Chambers, 2068 Escarpa Drive, Eagle Rock, Los Angeles.—J.G.

Bird students in the San Francisco Bay region will be appreciative of a down-to-date, carefully compiled, annotated list of the "Birds of Marin County" (Audubon Association of the Pacific, 206 California Street, San Francisco, crown 8vo, 16 pp., price 25 cents). This has been provided under the authorship of Laura A. Stephens and Cornelia C. Pringle, whose source material consists chiefly of the records of fifty-six trips afield in Marin County by members of the Audubon Association of the Pacific during the years 1919 to 1933, inclusive. A total of 269 kinds of birds are given formal entry, of which 85 are residents, 39 summer visitants, 87 winter visitants, 32 transients, and 26 of rare occurrence.—J.G.

Otto Widmann died at his home in St. Louis on November 26, 1933, at the age of 92 years. He had held the distinction latterly of being the oldest living American ornithologist; and to the very last, so we are informed by his daughter, Mrs. Mildred Widmann Philippi, he retained active interest in birds and in the organizations concerned with bird study. He had been a member of the Cooper Ornithological Club for thirty years and of the American Ornithologists' Union for fifty years. Aside from his important published contributions upon Mississippi Valley birds, Widmann is known to westerners from his visit to California in 1903 and the resulting account of "Yosemite Valley Birds" printed in the *Auk* in 1904. His autobiography, most interestingly written, with portraits, appeared in the *Wilson Bulletin*, xxxix, 1927, pp. 146-155.—J.G.

We have read through, every word of it, Frank M. Chapman's "Autobiography of a Bird-Lover" (Appleton-Century Co., New York, 1933; 8vo, pp. xiv + 420, 4 col. pls., 84 hft. ills.; \$3.75). Once the reading be started, we fail to see how any naturalist could withstand the fascinating quality of this book, maintained,

as it is, to the very end. Suffice it here to say, of necessity all too briefly, that illuminating sidelights on the latter-day history of American ornithology are in this volume interspersed with vivid, personal narrative concerning Dr. Chapman's many resultful trips afield.—J.G.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

SEPTEMBER.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, September 28, 1933, in Room 2003, Life Sciences Building, Berkeley, with about 120 members present and Vice-president Miller in the Chair. Minutes of the Northern Division for August were read by title only. Minutes of the Southern Division for August were read. The following persons were proposed for membership: Miss Patricia Anderson, 2325 Piedmont Ave., Berkeley, California, by Alden H. Miller; Mrs. I. M. Thompson, 1004½ Cragmont Ave., Berkeley, by Amelia S. Allen; Hugh M. Worcester, U. S. Reservation Protector, Box 50, Merrill, Oregon, by E. L. Sumner, Sr., through the Western Bird-banding Association.

Mr. Dyer reported a Fox Sparrow in his Piedmont garden on September 16, and Miss Pringle a Fox Sparrow in Golden Gate Park on September 27. Robert Taylor reported 20 Cedar Waxwings seen in Oakland September 20, and on the same date a House Wren and a Slender-billed Nuthatch at the scout camp near Oakland. A few Phalaropes were on a small pool and one rising was struck by a Sharpshinned Hawk from which it escaped, so badly injured, however, that it died a few hours later. Mrs. Kelly told of seeing Western Tanager in the pear trees at her Alameda home. Miss Baldwin had seen a flock of about thirty Vaux Swifts near Redondo Beach last month.

Mr. Harwell told of autumn conditions in Yosemite and of seeing during the last two weeks many Phalaropes on Crater Lake, Oregon, Mono Lake, California, and on the small lakes of Yellowstone Park. At the latter place it was noted that some of the birds were "whirling" clockwise on the water and some counter-clockwise. He regretfully admitted that he could not report seeing any one bird change the direction of its "whirl." Miss Rinehart reported seeing a Road-runner in Altamont Pass, California, on August 30.

The first speaker of the evening was Dr. Alden H. Miller, who during the past summer journeyed by automobile from California to New England. His topic was "Songs of Closely Related Eastern and Western Birds." Dr. Miller's accurate knowledge of the songs of western species specially qualifies him to make comparisons with eastern birds. His talk was illustrated by whistled notes and by blackboard drawings. He referred to his keen pleasure in visiting bird haunts with Dr. Wetmore in Maryland and with Mr. Peters in his typically New England apple orchard. Among comparisons made, Dr. Miller found the clear notes of the Eastern Wood Pewee quite different from those of our Western Wood Pewee and more like those of our Western Flycatcher; the song of the Short-billed Marsh Wren very like that of our Tule Wren; the song of the Tufted Titmouse louder and not so clear as that of our Plain Titmouse; the note of the Kentucky Warbler in Kansas very like that of our Tolmie Warbler; and he showed wherein the songs of the Eastern and Western meadowlarks differ.

During the last ten years it has been the good fortune of Dr. Sumner C. Brooks to spend between seventy and eighty days all told on the open ocean, and under the topic "Notes on Ocean Birds" he recounted some of his experiences with oceanic species. His time was almost equally divided between the Atlantic and the Pacific oceans. On the latter he found pleasure in watching Tropic-Birds, Petrels, Storm Petrels and Albatrosses. On the North Atlantic, Jaegers furnished most interest. On both oceans birds were most abundant where cold and warm currents met, with the consequent up-bringing of food. Dr. Brooks mentioned Alexander's "Birds of the Ocean" as being most helpful in the identification of birds seen.

Adjourned.—HILDA W. GRINNELL, *Secretary*.

OCTOBER.—The regular meeting of the Northern Division of the Cooper Ornithological Club was held at 8:00 p. m., Thursday, October 26, 1933, in Room 2003, Life Sciences Building, Berkeley. About sixty-eight members and friends were present, with Vice-president Alden Miller presiding. Minutes of the September meeting were read and approved and the minutes of the meeting held by the Southern Division on September 26 were read.

Vice-president Miller presented an ap-

plication signed by five Cooper Club members (J. O. Snyder, Junius Henderson, John B. Price, Isabel McCracken, M. E. Davidson) requesting the establishment of a local chapter of the Cooper Ornithological Club to accommodate members residing at the southern end of the San Francisco Peninsula; the meetings to be held at Stanford University. This application will follow the same course as an application for membership.

Miss Wythe announced that a generous sum of money has been offered to the Club to provide suitable prizes for a "program contest," to stimulate members more readily to present the results of their work in ornithological fields. A suggested outline for such a contest was presented together with a motion that the Northern Division hold such a contest during the first months of 1934, and that a committee be appointed to work out all details necessary in connection with said contest and report fully at the November meeting. The motion was seconded and unanimously carried. The chair appointed Miss Margaret Wythe, Chairman, Mrs. J. T. Allen and Mr. Brighton C. Cain as additional members. Mr. Cooper presented a motion that a resolution be drawn up and incorporated in the minutes, expressing the gratitude of the Club for the gift. This was voted, as follows:

Whereas certain donors have agreed to provide funds to furnish prizes, to be offered in a program contest to be held by the Northern Division of the Cooper Ornithological Club, be it

Resolved that the gratitude of the Club be expressed through this record in the minutes of the Club.

A request for field observations brought out the following records: Rock Wrens and Savannah Sparrows were seen by Dr. Miller on October 15 in the hills between Concord and Pittsburg; and Lewis Woodpeckers and a Prairie Falcon near Tassajara. Miss Helen Pratt, from the Southern Division, reported Yellowhammers at Paso Robles. Mockingbirds were again reported near the end of Arlington Avenue, Berkeley.

The program of the evening was presented by Mrs. G. Earle Kelly who gave a vivid account of her intensive observations of the waves of migrating birds which passed through Minneapolis between April 28 and May 2, and through Frontenac from May 2 to May 17, 1933. Beginning with Ruby-crowned Kinglets and Myrtle Warblers, and adding gradually the grosbeaks, thrushes, swallows and warblers which braved the cold days of

the first week of May, her daily totals ranged from thirty-three to fifty species. On May 8, a cold southeast wind with rain brought in such birds as orioles and Yellow Warblers in great numbers and the totals increased to sixty-two species. On May 10, eighty-two species were seen, with more and more new warblers appearing. Decreases on May 11 and 12 preceded the great wave of May 13 and 14 when ninety-two species were recorded, fifteen of them warblers. By May 17 the leaves were out, the Wood Pewee had arrived, and the main waves of migrants had passed. Mrs. Kelly succeeded in giving such excellent descriptions of the natural setting for these observations that the whole result was a most vivid picture of the experiences described.

Adjourned.—AMELIA S. ALLEN, *Secretary pro tem.*

SOUTHERN DIVISION

AUGUST.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at 8:00 p. m., Tuesday, August 29, 1933, at the Los Angeles Museum, Exposition Park, Los Angeles. President Robertson presided and twenty-nine members and guests were present. Minutes of the Southern Division for July were read and approved. Minutes of the Northern Division for July were read by title only.

In response to request for field observations, Mr. Willett spoke of having made several recent trips off-shore and of finding Pomarine Jaegers to be more common than heretofore; Sabine Gulls were seen by the thousands; Phalaropes were plentiful, but the Red were few in number. Sandpipers and Avocets had been seen by Mrs. Faddis at Playa del Rey. Dr. Warmer told of having seen quite a few Marbled Godwits recently; also, that at Point Mugu a great number of Pelicans had been noted. Black-footed Albatrosses near Santa Barbara were reported by Mr. Pemberton.

Mr. Willett mentioned receiving a letter from Mr. Frederick C. Lincoln, of the U. S. Biological Survey, in regard to the present status of oil on western waters and beaches, and asked if any one had recently noticed oil on the plumages of birds. In the general discussion which followed Mr. Pemberton said the oil industry was doing all that it could to prevent oil from getting on the water; that practically no oil was now getting into the ocean from the oil fields; that it was true fewer tankers were being loaded at the present

time, and that during five days of yacht racing this summer the boats when moored showed no trace of oil on their sides. It was the consensus of opinion that few birds, if any, with oil soaked plumage had been seen during the year and that there was apparently much less oil on the water than had been the case in past years.

The speaker of the evening was Dr. Adele Lewis Grant, and her topic, "Some South African Birds," was entertainingly presented and was accompanied by a series of magazine pictures and colored plates descriptive of the bird and plant life of that region. Four years were spent in Africa by Dr. Grant, mostly in the Cape province and Rhodesia, with many outing trips and two long treks into the surrounding country. While her time was principally devoted to botanizing, considerable study was given to the birds in the various localities visited and she had many interesting comments with regard to their behavior, food habits, color of plumage, economic value, etc. At the conclusion of Dr. Grant's talk several trays containing specimens of South African Birds were brought in for exhibition and discussion.

Meeting adjourned.—LAURA B. LAW, *Secretary.*

SEPTEMBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held on Tuesday, September 26, 1933, at the Los Angeles Museum, Exposition Park, Los Angeles. President Robertson was in the chair and twenty-seven members and guests were present. Minutes of the Southern Division for August were read, and were approved after one correction was noted. Minutes of the Northern Division for August were read.

Announcement was made by Mr. Chambers that Avifauna No. 21, a revised edition of the "Birds of the Pacific Slope of Southern California," by George Willett, was in the printer's hands and would be off the press in about sixty days. Mr. Chambers also spoke of having received a letter from Mrs. Florence Merriam Bailey asking that her mailing address for the *Condor* be changed to San Marcos, San Diego County, California, and he expressed the hope that this nearness of residence of Mr. and Mrs. Bailey would mean frequent visits by them to Los Angeles and attendance at Cooper Club meetings. Dr. Miller called attention to the next annual meeting of the Cooper Club, to be held at San Diego in the spring

of 1934, and requested that members give consideration to, and make suggestions regarding, the most suitable meeting date.

Recently, while visiting the Zoo in San Diego, Dr. Miller saw the South American Condor and obtained one of its primary feathers. This feather was shown in comparison with a similar primary taken from the California Condor and in the discussion which followed the lengths of the two feathers were thought to be about equal, but the primary of the California Condor appeared to have the greater width. Dr. Miller also had with him, for exhibition and discussion, the tail taken from an Australian Wedge-tailed Eagle which had been sent to him in the flesh by Dr. W. S. Wilkinson, of Melbourne, Australia.

Field observations while in Sequoia National Park this summer were given by Mr. Michener and Mr. Robertson. Mr. Skinner told of having watched with interest the feeding habits of various species of birds while at Sequoia early in August. His observations were that the omnivorous species were the first to appear at daybreak or shortly after; then at sunrise came the seed-eaters; and after the sun had warmed the air the insect-eaters appeared. This feeding sequence of the different species was very marked and Mr. Skinner asked if other members had ever noticed the same thing in their studies afield. Mr. Clary reported having recently seen more than a thousand White Pelicans on Salton Sea and that the birds seemed to be more common than they had been for some time. Gambel Sparrows were seen September 15 this year on his ranch at Coachella. Mr. Pierce reported his first record of American Egret at Bear Lake; also, that this year he had seen a Marsh Hawk at Bear Lake for the first time. White Pelicans, common last year, did not seem to be present this summer. Pintails were abundant. In early September among some twenty thousand birds seen on Baldwin Lake practically all were Pintails. Dr. Bishop gave interesting data with regard to birds encountered on his trip to and from British Columbia this summer. Vaux Swifts in British Columbia, he said, showed an apparent decrease in numbers. In speaking of the late nesting of Crossbills in the spruces at Seabright, Nova Scotia, he told of having had his observation made in August twenty years ago verified by a friend this year with an even later nesting date. It is Dr. Bishop's thought that the abundance of food has a

great deal to do with extending the breeding season for the Crossbills.

Meeting adjourned.—LAURA B. LAW, Secretary.

OCTOBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held on Tuesday, October 31, 1933, at the Los Angeles Museum, Exposition Park, Los Angeles, with fifty members and guests present and President Robertson in the Chair. Minutes of the Southern Division for September were read and approved. Minutes of the Northern Division for September were read.

The proposed ordinance for "... regulating the keeping of cats within the County of Los Angeles; imposing license taxes and providing for the humane killing of unlicensed cats at large," submitted to the Board of Supervisors of Los Angeles County by the Los Angeles Chapter of the Izaak Walton League, was presented for action; and on motion by Dr. Bishop, seconded by Mr. Willett, and duly carried, it was agreed that the Southern Division of the Cooper Ornithological Club should go on record as endorsing this proposed ordinance.

Report of a badly wounded Osprey having been picked up in Altadena in early October was made by Dr. Cowles. Mr. Sidney Peyton announced that the two Condors nesting in the Sespe were still in the same place and, about the first of September, acted as though they had young.

"Bird Islands from Gulf to Galapagos," the topic of the evening's program, was entertainingly and instructively presented by Mr. John S. Garth. Mr. Garth has made two trips to the Galapagos aboard the sea-going yacht of Mr. G. Allan Hancock, and on both trips has been able to visit many of the islands passed enroute. He had with him for exhibition purpose a number of bird specimens secured on these trips, and also a reel of motion pictures showing the home life of several species, including that of the Flightless Cormorant. One picture of exceeding interest was the hatching of a Flightless Cormorant. A pipped egg had been secured, placed in convenient position for the camera, and the remarkable action of the young bird emerging from the shell was splendidly reproduced.

Meeting adjourned.—LAURA B. LAW, Secretary.

